

AMERICAN FORESTS AND FOREST LIFE

FORMERLY AMERICAN FORESTRY



VOLUME 30

NUMBER 364

THE BATTLE OF ICE AND FOREST

AND OTHER FEATURES

APRIL, 1924

PRICE, 35 CENTS

The American Forestry Association

Washington, D. C.

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ADEQUATE FOREST FIRE PROTECTION by federal, state, and other agencies, individually and in co-operation; the REFORESTATION OF DENUDED LANDS, chiefly valuable for timber production or the protection of stream-flow; more extensive PLANTING OF TREES by individuals, companies, municipalities, states and the federal government; the ELIMINATION OF WASTE in the manufacture and consumption of lumber and forest products; the advancement of SOUND REMEDIAL FOREST LEGISLATION.

The ESTABLISHMENT OF NATIONAL AND STATE FORESTS where local and national interests show them to be desirable; the CONSERVATIVE MANAGEMENT OF PUBLIC AND PRIVATE FORESTS so that they may best serve the permanent needs of our citizens; the development of COMMUNAL FORESTS.

FOREST RECREATION as a growing need in the social development of the nation; the PROTECTION OF FISH AND GAME and other forms of wild life, under sound game laws; the ESTABLISHMENT OF FEDERAL AND STATE GAME PRESERVES and public shooting grounds; STATE AND NATIONAL PARKS and monuments where needed, to protect and perpetuate forest areas and objects of outstanding value; the conservation of America's WILD FLORA.

The EDUCATION OF THE PUBLIC, especially school children, in respect to our forests and our forest needs; a more aggressive policy of RESEARCH AND EDUCATIONAL EXTENSION in the science of forest production, management, and utilization, by the nation, individual states, and agricultural colleges; reforms in present methods of FOREST TAXATION, to the end that timber may be fairly taxed and the growing of timber crops increased.

AMERICAN FORESTS AND FOREST LIFE

(Formerly American Forestry)

THE MAGAZINE OF THE AMERICAN FORESTRY ASSOCIATION

OVID M. BUTLER, Editor

WASHINGTON, D. C.

L. M. CROMELIN, Assistant Editor

Vol. 30

APRIL, 1924

No. 364

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Published monthly—35 cents a copy—\$4.00 a year

CHANGE OF ADDRESS

A request for change of address must reach us at least thirty days before the date of the issue with which it is to take effect. Be sure to give your old address as well as the new one.

Publication and Business Office, The Lenox Building, 1523 L Street, Washington, D. C.

Entered as second-class matter at the Post-office at Washington, D. C., under the Act of March 3, 1879. Acceptance for mailing at special rate of postage provided for in Section 1103, Act of October 3, 1917, authorized July 10, 1918.

Member A. B. C.

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FOREST PROTECTION WEEK, 1924

By the President of the United States of America

A Proclamation

WHEREAS, it is essential to the continued comfort, welfare, and prosperity of the people of the United States that abundant forests, widely distributed and maintained in a condition of high productiveness, be forever wisely conserved as one of our greatest natural resources; and

WHEREAS, because of our constantly increasing need for wood and other forest products, together with our past failure to provide for reforestation, we are drawing upon our supplies of timber four times as fast as they are renewed through growth; and

WHEREAS, the most formidable agency of forest destruction and prevention of reforestation is fire and, of the fires which annually devastate vast areas, four-fifths are ascribed in origin to human agencies and virtually all may be controlled and made innocuous through prudence, care, and vigilance;

THEREFORE, I, CALVIN COOLIDGE, President of the United States, do urge upon the Governors of the various States to designate and set apart the week of April 21-27, 1924, as Forest Protection Week, and, wherever practicable and not in conflict with State law or accepted customs, to celebrate Arbor Day within that week. I also urge all citizens, either in association or as individuals, all schools, and the press of the land to give common thought to the protection of our forests from fire, to the end that, in the future as in the past, these forests may supply us with wood, protect the purity of our streams, and otherwise serve the people of the United States.

In Witness Whereof, I have hereunto set my hand and caused the seal of the United States to be affixed.

[SEAL.] DONE at the City of Washington this 15th day of Feb., in the year of our Lord one thousand nine hundred and twenty-four, and of the Independence of the United States of America the one hundred and forty-eighth.

By the President:
CHARLES E. HUGHES
Secretary of State.

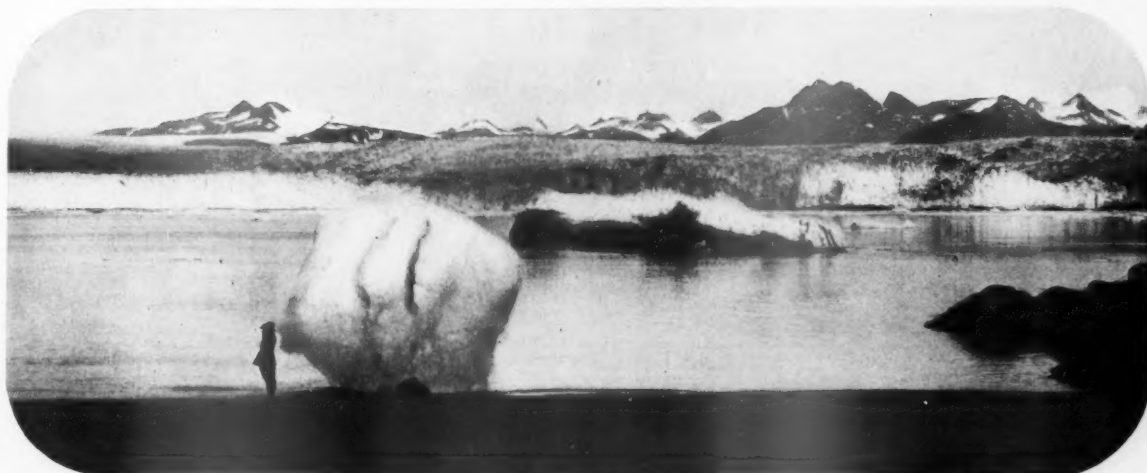


AMERICAN FORESTS

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BEAUTIFUL MUIR GLACIER, ITS CLIFF A MILE AND A HALF WIDE AND THREE HUNDRED FEET HIGH

The Battle of Ice and Forest

*Being the Story of Muir Glacier, Where a Long-drawn Conflict
Between Slow-moving, but Mighty, Forces of
Nature Is Taking Place*

BY WILLIAM S. COOPER

WHEN a glacier chooses to extend itself, forest and everything else movable go down before it. But on the part of the forest there is no shrinking before the advance of the mighty ice stream. Tree and shrub, herb and moss, go on with their accustomed daily round, like Belshazzar and his jovial subjects, until the enemy, ice, is actually upon them, uprooting, burying, grinding them to fragments. And when the frigid attack has spent itself and the ice margin once more recedes, back comes the forest, close at its heels; so that before many years have passed the area so recently devastated is again clothed with verdure. And, furthermore, the forest is not averse, when conditions permit, to a home astride the ice itself. Stagnant parts of glaciers sometimes accumulate a thick covering of rock and soil, brought down from loftier regions in the progress of their slow motion, and spruces and other trees find a home thereon; so that one would hardly believe that hundreds of feet of solid ice lie beneath.

Glacial movements are of the nature of oscillations—alternating periods of advance and retreat, due to changes of climate and certain other contributory causes. Sometimes the glacial changes, and consequent development and destruction of forest growth are exceedingly slow, but frequently they are rapid—that is, they are measurable in years rather than in centuries.

If one could station himself beside the edge of a retreating glacier and remain there for a hundred years or so, a fascinating drama would unfold itself before his eyes. The ice would slowly melt away at his feet and recede year by year into the distance. The ground, at first bare and raw, would give birth to plants—first, certain hardy herbs and creeping shrubs, many years later a thicket growth, and finally the forest. Imagine a movie of the process—a picture a year!

Such a study is, of course, an impossibility for any one but a Methuselah; but, nevertheless, an ordinary mortal may approximate it in a very satisfactory way. I, for one,



THE LAMPLUGH GLACIER, ONE OF THE MOST ACTIVE
IN ICEBERG DISCHARGE

am doing so, and Glacier Bay, in southeastern Alaska, is the stage upon which the drama is being enacted.

Glacier Bay is a great fiord surrounded by lofty mountains with several branches, each one sheltering at its head a glacier which is actively giving birth to icebergs. It was not always so, and it is our accurate knowledge of its history during the last century and more that gives the place its unexcelled advantage for such a study. First of all, from historical evidence, we know that in 1794 the whole fiord, sixty miles long, was occupied by a single huge glacier, which since that time has receded until the main trunk body has all but disappeared, leaving instead nine separate ice fronts where were formerly tributary streams. Moreover, John Muir in 1879, and others since then, have accurately mapped the limits of the various ice streams at the times of their visits. We may therefore, so to speak, put our finger upon the spot where the ice edge rested in a certain year, and thus know how long it has taken the existing vegetation to attain its present state of development. This, with the possibility of determining the age of woody plants by counting the rings, enables us to reconstruct in a most satisfactory manner the scenes of the drama that are past.

Equipped with provisions for a hundred and fifty years,

let us take our stand upon a certain rocky knob not far from the world-famous Muir Glacier. Before us, across a mile-wide expanse of water, stretches the mighty Muir—a cliff of ice, blue and dazzling white, a mile and a half in extent and rising three hundred feet above the water. Every few minutes, with a mighty roar, a portion of the cliff breaks away—a mass equal to a good-sized office building, perhaps, or a million or so of smaller fragments in a torrent of rushing whiteness—and another great iceberg is born or a whole brood of little ones.

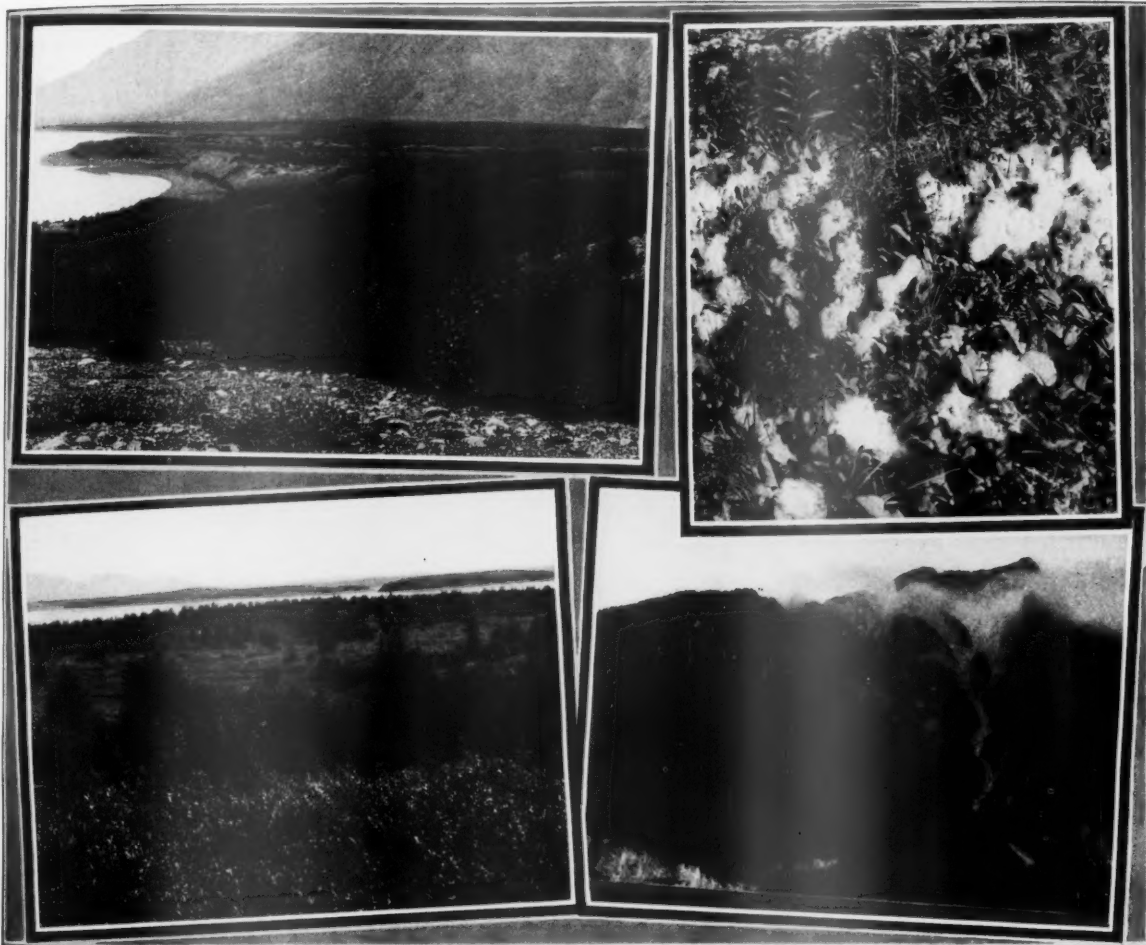
But the more spectacular features of the vicinity have turned our attention from the true object of our study. Close to our rocky knob the edge of the glacier rests on the land; and here, instead of ending in a cliff, it peters out into a thin, almost knife-edge, margin, which slowly but constantly melts away, leaving the bare ground exposed. In places we find smoothly polished rock coming to view; in others, thick deposits of sand, gravel, and silt. It is a poor sort of place for plants to grow, saturated with ice water and sorely lacking in foodstuffs; but we will



A HARDY FORERUNNER OF THE FUTURE FOREST—
WILLOW-HERB GROWING IN A CREVICE OF THE ICE-
POLISHED CLIFF

have to wait but a few years to see here and there a courageous pioneer make a brave attempt at a start. Many germinate only to die, but a few of the hardiest species manage to pass successfully through the critical period of early life. The willow-herb is invariably one of these—a relative of the common fireweed of our northern forests, with large magenta flowers. Frequently one finds it firmly rooted in the smallest cracks of the polished rock surface. Certain hardy mosses arrive equally early and

forms dense carpets, often rooting in a rock crevice and spreading over the neighboring surfaces, and accumulates and holds on to humus and moisture, and to seeds and fruits as well, thus furnishing continually better conditions for plant growth. Along with the willows occurs a plant, not of particular importance in forest development, but exceedingly welcome to the hungry explorer—the wild strawberry. Such strawberries simply do not exist elsewhere—in garden, field, or woods—as large as a



STAGES IN THE STRUGGLE FOR SURVIVAL—FIRST, AN ALDER THICKET UPON THE SHORE OF GLACIER BAY; SUCH A GROWTH ALWAYS PRECEDES THE ESTABLISHMENT OF A FOREST; THEN, DENSE MATS OF ARCTIC WILLOW, WHICH ACCUMULATE AND HOLD HUMUS AND WATER, HELPING TO PREPARE A HOME FOR THE COMING FOREST; NEXT, YOUNG SPRUCES INVADE THE THICKET GROWTH OF WILLOW AND ALDER. THE STEADY MARCH OF THE YOUNG TREES DOOMS THE SHRUBS TO ULTIMATE EXTINCTION; AND, LASTLY, THE DENSE SPRUCE FOREST, WHICH HAS DEVELOPED THROUGH THE PROCESS OF SUCCESSION SINCE THE ICE LEFT THIS SPOT A CENTURY AND A QUARTER AGO

form extensive carpets upon rock and gravel. More important are mat-forming herbs and creeping shrubs.

In Alaska, as in all subarctic countries, there are a number of willows which, instead of forming bushes in the familiar way, grow flat upon the ground. Many of these are exceedingly small, showing above the surface no more than a half dozen of leaves and a pussy or two; but one of the largest species, the Arctic willow, is exceedingly important in the early scenes of our drama. It

cultivated berry, infinitely sweeter, and in inexhaustible abundance.

In the meantime the ice has been steadily receding; so that by this time it may be five miles distant, perhaps even ten. The atmosphere and soil, no longer subject to its icy breath, are distinctly warmer; water is present in sufficient, but not oversufficient, amount, and plant food is becoming steadily more abundant. In thirty, forty, or fifty years, then, we will observe the establishment of a



STUMPS OF AN ANCIENT INTERGLACIER FOREST THRUST JAGGED STUMPS UP THROUGH THE BEACH

second group of plants — willows of the familiar bushy type and alders, joining forces to form a dense, tall thicket. The lower plants, having accomplished their destined work of preparation, die away, and their remains are added to the general store of plant food.

And then the third and final scene, in which the trees are the chief actors. One by one they make their entrance beneath the fostering shade of alder and willow, which alone makes possible their establishment. They grow and grow until they overtop the protectors of their youth. New individuals are constantly arriving, until the congregation of them takes on the character of true forest, in the shades of which the friendly bushes languish and die. Such is the inevitable consequence of the process of development — each group of plants prepares the way for another, and in the same act decrees its own de-

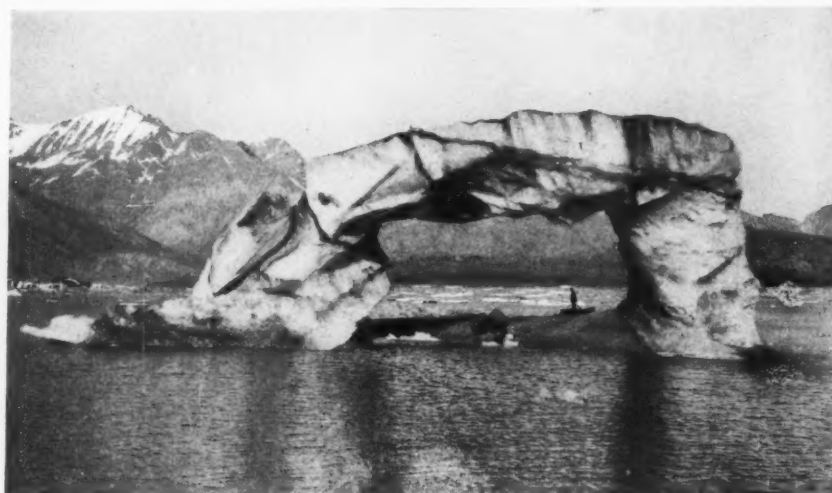
struction; and each and every group makes its appropriate contribution to the ultimate forest, which is the end and climax of it all.

The first tree species to become established is the Sitka spruce, which is greatly aided by its habit of "layering," in which the lower branches, lying upon the ground, become covered with soil and humus, strike root, turn their tips erect, and become independent trees. Later comes the hemlock and slowly increases its proportion; so that we may say with fair certainty, the more hemlock, the older the forest.

And now, whereas one hundred and fifty years ago we took our stand upon bare gravel or smooth rock, today we are surrounded by tall trunks of trees and wade knee-deep in moss.

The ice has long since gone into the dim distance.

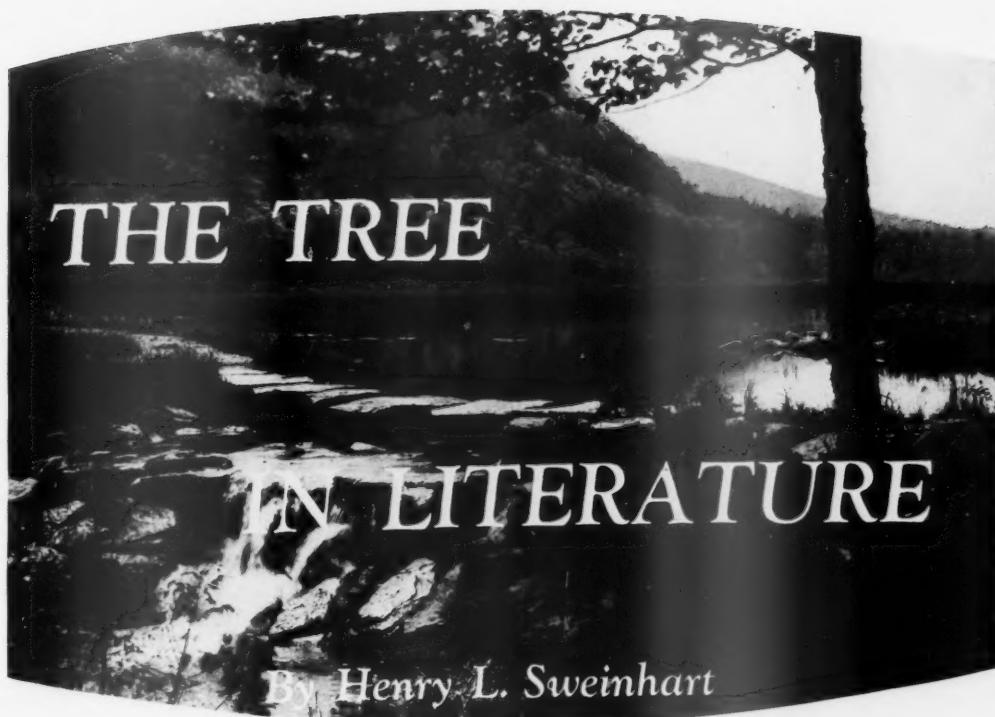
[Continued on page 234]



A MAJESTIC REPRESENTATIVE OF THE WONDERFUL FLEET OF ICEBERGS THAT SAIL THE BAY



DECAPITATED TREES OF THE ANCIENT FOREST, NOW BEING WASHED FROM THE GRAVELS IN WHICH THEY HAVE LAIN BURIED FOR MANY CENTURIES



THE tree and the forest; the strength of the giant oak, the quiet beauty of the woodland, and the magic mysticism of the deeper woods—these have been the theme of the poet's praise and of the prose writer's encomium from the earliest days of literature down to the present time; from the days of David, "sweet singer of Israel," who exalts "the trees of the Lord" and "the cedars of Lebanon," on through the ancient Greek and Roman poets and later writers, down to the days of Joyce Kilmer, poet-hero of the late war, who gave his life in France and who sang:

"I think that I shall never
see
A poem lovely as a tree."

The gift of a tree, according to the poetic Greek legend, led to the naming of Athens. The story runs that in the reign of the first king of the city there was a contest between Neptune and Minerva as to which should be its patron. It was decided that the honor should go to the one producing the gift most useful to mankind. Neptune presented a horse; Minerva the olive tree.

The latter was adjudged to be the more useful gift, and the city was named Athens in honor of the goddess, whose Greek name was Athene. On that account the olive tree was held sacred ever after in Athens.

Trees have been the shelter of the philosopher and the inspiration of the nature-lover. "The groves were God's first temples," says the poet Bryant; and Emerson declares that "the Gothic church plainly originated in a

"THE Gothic church plainly originated in a rude adaptation of the forest trees, with all their boughs, to a festal or solemn arcade, as the bands about the cleft pillars still indicate the green withes that tied them. . . . In the woods in a winter afternoon one will see as readily the origin of the stained-glass window, with which the Gothic cathedrals are adorned, in the colors of the western sky seen through the bare and crossing branches of the forest. Nor can any lover of Nature enter the old piles of Oxford and the English cathedrals without feeling that the forest overpowered the mind of the builder, and that his chisel, his saw and plane, still reproduced its ferns, its spikes of flowers, its locust, its pine, its oak, its fir, its spruce."

—Ralph Waldo Emerson, *Essay on "History"*

rude adaptation of the forest trees, with all their boughs, to a festal or solemn arcade." With ancient and modern poet alike, the tree has been a symbol of peace, content, and protection. It has been praised as the useful servant and the faithful friend of man. Both from an artistic and a utilitarian standpoint has it been lauded; both for its beauty and its usefulness has it been made the subject of highest esteem.

Stevenson referred to trees as "citizens" of the forest. He declared that "trees are the most civil society." "There is nothing so much alive, and yet so quiet, as a woodland," he says; "and a pair of people, swinging past in canoes, feel very small



"Arched walks of twilight groves,
And shadows brown."

and bustling by comparison." Thoreau, whom John Burroughs calls "a wood genius," declares in his "Walden" that, in his rambles for knowledge, "instead of calling on some scholar, I paid many a visit to particular trees." He asserts of another famous American author that "the shy, mystical genius of Hawthorne was never more at home than when in the woods." James Thomson, in "The Sea-

sons," calling on Nature to join in adoration, declares that

"the scarcely-waving pine,
Fills the brown shade with a religious air."

Milton, in *L'Allegro*, speaks of the joys of the upland hamlet, where the

"jocund rebecks sound
To many a youth and many a maid
Dancing in the checkered shade."

And in his companion poem, "Il Penseroso," he asks the quiet goddess to bring him

"To archéd walks of twilight groves,
And shadows brown, that Sylvan loves,
Of pine, or monumental oak,
Where the rude ax with heavéd stroke
Was never heard the nymphs to daunt,
Or fright them from their hallowed haunt."

Shakespeare and Spenser, Christopher Marlowe and Thomas Lodge, Keats and Thomas Hood, Wordsworth and Shelley, Stevenson and Richard Jefferies, among English writers, and Bryant, Longfellow, Whittier, Irving, Cooper, Hawthorne, Burroughs and Thoreau, to mention only a few among a host of American authors, all have added their meed of praise to the beauty, the usefulness, the inspiration and the strength, the cheer, the

comfort, and the protection which the tree and the forest furnish to man.

One of the finest tributes in prose is that of Washington Irving, genial and happy author, who in his charming "Bracebridge Hall," where he describes the pleasures of a fine old English country home, devotes an entire chapter to "Forest Trees." The Squire of Bracebridge Hall, according to Irving, prided himself so highly upon his stately old ancestral elms that "it was with great difficulty he can ever be brought to have any tree cut down on his estate."

"An avenue of elms," the Squire affirmed, "is the true colonnade to a gentleman's home. As to stone and marble, any one can rear them at once—they are the work of the day; but commend me to the colonnades that have grown old and great with the family, and tell by their grandeur how long the family has endured."

In Irving's day the forests of America seemed inexhaustible; and in this country, at least, there was no thought of reforestation; yet he says: "He who plants an oak looks forward to future ages and plants for posterity. Nothing can be less selfish than this. He cannot expect to sit in its shade or enjoy its shelter, but he exults in the idea that the acorn which he has buried in the earth shall grow up into a lofty pile, and shall keep on flourishing and increasing and benefiting mankind long after he shall have ceased



"The groves were God's first temples—
Thou didst look down
Upon the naked earth, and forthwith rose
All these fair ranks of trees. They,
in thy sun,
Budded, and shook their green leaves
in thy breeze,
And shot towards heaven."

—Bryant.

to tread his paternal fields." As to its charm, he says: "There is a serene and settled majesty in woodland scenery that enters into the soul and dilates and elevates it and fills it with noble inclinations."

In "Bracebridge Hall" again, he says: "There is an affinity between all nature, animate and inanimate: the oak, in the pride and lustihood of its growth, seems to me to take its range with the lion and the eagle, and to assimilate, in the grandeur of its attributes, to heroic and intellectual man. With its mighty pillar rising straight and direct toward heaven, bearing up its leafy honors from the impurities of earth, and supporting them aloft in free air and glorious sunshine, it is an emblem of what a true nobleman should be—a refuge for the weak, a shelter for the oppressed, a defense for the defenseless, warding off from them the peltings of the storm or the scorching rays of arbitrary power."

Trees and the wooded landscape are beautiful at all seasons of the year, and literature is filled with references to their springtime freshness, their welcome summer shelter, their autumn glory, and their winter lacelike patterns. Stevenson, in his "Travels with a Donkey," describes his journey through "woods of birch all jeweled with the autumn yellow." In another place he tells of "a pleasant village among trees." How much trees add to the surroundings of any place! Longfellow, in a translation, sings of the hemlock tree:

"how faithful are thy branches!
Green not alone in summer time,
But in the winter's frost and rime!
O hemlock tree! O hemlock tree! how faithful are thy branches!"

A picture of the "Land of Eldorado" formed by the sleet-covered trees of winter, with their "silver leaves and diamond flowers," is given by Whittier in "The Pageant," where he writes:



"And this our life, exempt from public haunt,
Finds tongues in trees, books in running brooks,
Sermons in stones, and good in everything."
—Shakespeare.

"I leave the trodden village highway
For virgin snow-paths glimmering through
A jeweled elm-tree avenue;

"Where, keen against the walls of sapphire,
The gleaming tree-bolls, ice-embossed,
Hold up their chandeliers of frost."

Emerson tells of the stained-glass-window effect produced by the woods on a winter afternoon.

Shakespeare, who found "tongues in trees" and who used them also as convenient places on which lovers could hang their verses, also sang, through the mouth of Amiens, in "As You Like It":

"Under the greenwood tree,
Who loves to lie with me,
And turn his merry note
Unto the sweet bird's throat,
Come hither, come hither, come
hither!

Here shall he see
No enemy
But winter and rough weather."

Omar Khayyam, famous Persianmaker of tents and of imperishable verses, also recognized the sheltering worth of the tree when he sang:

"A book of verses underneath
the bough,
A jug of wine, a loaf of
bread—and thou
Beside me singing in the
wilderness—
Oh, wilderness were Paradise
enow!"

Shakespeare had the lover to say:

"O Rosalind! these trees shall
be my books,
And in their barks my
thoughts I'll character,
That every eye which in this
forest looks
Shall see thy virtues wit-
nessed everywhere.
Run, run, Orlando; carve on
every tree
The fair, the chaste, and un-
expressive she."

But many other uses has the tree—in fact, they are almost numberless. Says Emerson: "One piece of the tree is cut for a weathercock, and one for the sleeper of a bridge; the virtue of the wood is apparent in both." Spenser, in his "Faery Queen," catalogues the useful services to man of a large number of trees: "The builder oak, sole king of forests all; the yew, obedient to the bender's will; the aspen, good for staves; the birch, for

shafts; the warlike beech;
the fruitful olive," and
so on.

Many are the lessons,
spiritual and moral, which
the poets, the philosophers,
and other writers have
drawn from the tree and
the forest. It has lifted
their thoughts heavenward,
as did the tender childhood
recollection of Thomas
Hood in his song:

"I remember, I remember
The fir trees, dark and high;
I used to think their slender
spires
Were close against the sky."

If in the groves man first

"knelt down
And offered to the Mightiest
solemn thanks
And supplication,"

it was more than fitting
that "man-made cathedrals"
should have been modeled
from the designs of the
master architect, Nature,
as seen in the forest.

The ever-changing les-
sons which Nature is pic-
turing upon her myriad
canvases of the woods, are
thus described by Thoreau:

"Already by the first of
September I had seen two

or three small maples turned scarlet across the pond,
beneath where the white stems of three aspens diverged,
at the point of

a promontory,
next the water.
Ah, many a
tale their color
told! And
gradually from
week to week
the character
of each tree
came out and
it admired it-
self reflected
in the smooth

mirror of the lake. Each morning the manager of this
gallery substituted some new picture, distinguished by
more brilliant or harmonious coloring, for the old upon
the walls."

The crashing of a mighty pine on the mountain top is
likened by Virgil to the fall of a great warrior in battle,



"I remember, I remember
The fir trees, dark and high;
I used to think their slender spires
Were close against the sky."

"I WISH our way had always lain among woods. Trees are the most
civil society. An old oak that has been growing where he stands
since before the Reformation, taller than many spires, more stately than
the greater part of mountains, and yet a living thing, liable to sickness
and death, like you and me; is not that in itself a speaking lesson in
history? But acres on acres full of such patriarchs contiguously rooted,
their green tops billowing in the wind, their stalwart younglings pushing
up about their knees—a whole forest, healthy and beautiful, giving
color to the light, giving perfume to the air—what is this but the most
imposing piece in Nature's repertory?"

—Robert Louis Stevenson, "An Inland Voyage"

and Bryant, in his majestic
"Forest Hymn," makes this
comparison:

"Grandeur, strength and grace
Are here to speak of Thee. This
mighty oak—
By whose immovable stem I
stand and seem
Almost annihilated—not a prince
In all that proud old world be-
yond the deep
Ere wore his crown as loftily
as he
Wears the green coronal of
leaves with which
Thy hand has graced him."

The Greeks peopled the
woods and trees with
nymphs and other mythi-
cal spirits. "Each to her
oak the bashful Dryads
shrink."

Whittier, in "The Wood
Giant," gives a picture of
the ancient respect and
worship for the grandeur
of the forest. His poetry
in many places reveals his
own deep love for and keen
observation of trees.

"At the gates of the for-
est," says Emerson, "the
surprised man of the world
is forced to leave his city
estimates of great and
small, wise and foolish."
And again he declares: "In

the woods we return to reason and faith. There I feel
that nothing can befall me in life—no disgrace, no calam-
ity (leaving me
my eyes) which
Nature cannot
repair." Jeffer-
ies asserts that
"beneath the
trees the heart
feels nearer to
that depth of
life the far sky
means."

Bryant finds
in the forest

"the perpetual work
Of Thy creation, finished, yet renewed
Forever."

Sang Joyce Kilmer:

"Poems are made by fools like me,
But only God can make a tree."

The Lure of the Dogwood

BY JEANNETTE BASKERVILLE

OLD Doc Waters lives in a sleepy little village in the shadow of the Ozarks, where folks work only when they feel the urge and even the wheels of time are clogged. For forty years he has been the friend, comforter, and adviser of the "hill folks" for miles around. "I've doctored 'em, an' scolded 'em, an' helped the stork with the baby budget," he put it, as we loafed on the carved and whittled bench in front of his little drug store. He is as deeply enshrined in their hearts as they are in his little black book of accounts.

"Now, see here, young man," laughed the Doctor when I asked him where he had received his medical education, "I never said I had an eddication. For one year I read medicine with ol' Doc. Peters, an' the rest I got by practicin', suh, fust hand; by practicin' suh," and he nodded his grizzled head. "An' that's the way these city doctors get their best learnin', by practicin' in hospitals," and his big, whole-hearted laugh rang out in the quiet street.

It is the unwritten law in this Arcadian retreat that when the Dogwood flings her white-petaled signals out, everybody "knocks off" work and goes fishing. Crops must wait, sawmills shut down, when the Dogwood says

the fish are just "rearin' to bite.

Walking down the deserted street this morning, with the scent of the Dogwood in the air, I saw my old friend coming, in his antique high-waistline buggy, urging his fat, old gray mare to a trot, while every spoke rattled in protest. A near-jazz melody issued



"OLD DOC." AND DUSTY, FOLLOWING THE LURE OF THE DOGWOOD

from his pursed-up lips and deep joy sat upon his jolly, round face.

"Hello, Doc! What's your hurry? Got a case?" I cried, as he drew up in front of the drug store. Not



WHEN THE SCENT OF DOGWOOD FILLS THE AIR

bothering to answer, he called to the freckled-faced boy in the store to "lock up an' come on."

"Going on a trip, Doc.?" I asked, as I strolled toward the buggy, which was loaded with fishing tackle and lunch basket.

"No, suh," and with as withering a glance as he could manage; "no, suh! I'm goin' fishin'!"

"Going fishing!" I exclaimed. "Locking up your store to go fishing. Why, man, the other fellow will get all your business!"

"Business! Gol-darn the business! No, suh, when my business gets so pressin' I can't lock up an' go fishin', I'll sell the darned business, durned if I won't! G'lang, ol' Dolly."

And, following the lure of the dogwood, with a wisdom learned by clear, running streams, he blissfully jogged down the quiet street and turned into the shady lane which leads to the haunts of bass and speckled trout.

SPRING FEVER

Not exactly lazy,
Yet I want to sit
In the mornin' hazy
An' jest dream a bit.
Haven't got ambition
Fer a single thing—
Regalar condition
Ev'ry bloomin' spring.

Want to sleep at noontime
(Ought to work instead),
But along at moontime
Hate to go to bed.
Find myself a-stealin'
For a sunny spot—
Jest that springy feelin',
That is what I've got.

Like to set a-wishin'
Fer a pipe an' book,
Like to go a-fishin'
In a meadow brook
With some fish deceiver,
Underneath a tree—
Jest the old spring fever,
That's what's ailing me!

—Douglas Malloch.

The Lookout on the Hill

By H. E. CLEPPER

IN HER glass-enclosed cabin, sixty feet above the hill-top, Annie Potter, with binoculars glued to her eyes, scanned the surrounding country for forest fire. Facing the west, her vision embraced thousands of acres of woodland, extending from the South Mountains almost to where Gettysburg lay nestling among the fertile farms of Adams County; to the north, up the broad Cumberland Valley, bounded by heavily timbered hillsides; eastward, to the distant North Mountains, rising vaguely in their bluish haze; south, across the Mason-Dixon Line to the rolling hills of Maryland. With not a sign of the telltale smoke to be seen, Annie drew a deep breath of relief and lowered the glasses. Below, on the narrow trail which, ever rising, wound up the mountain, she descried a man trudging slowly towards the tower.

"Another visitor," she declared, and woman-like began what she called "redding up." She hastily gathered together the books and papers which she had been reading, and then, seizing a broom, swept thoroughly the already spotless small floor. This done, she again looked down on the approaching figure.

"Why, it's old Jerry Hodges," she discovered. "About time he was coming, too."

Since the new fire observation tower had been completed three weeks previously, there had been daily visitors, until practically all the residents of this sparsely settled region had seen it—that is, all except old Jerry. Although he lived only a mile or so away, at the foot of the mountain, he had never before today come near the place. While the tower had been still in the process of construction he had loudly ridiculed the whole idea as a piece of wanton

extravagance on the part of the state at the expense of the poor taxpayers. Then, as the people had continued to pass by his



THE SKELETON STRUCTURE OF STEEL THAT STOOD FOR A SYMBOL ON THE SOUTH MOUNTAINS

cabin on their way to look upon this seven-weeks' wonder, he had called them fools and vowed never to go near it himself. But old Jerry, being but human, and therefore, frail, had allowed his curiosity eventually to overcome his prejudice, and had calculated he might as well go see the "darned thing" before it blew over some dark night.

So Annie said that it was about time he was coming, because she knew he was the last one to visit her tower. She wanted all her neighbors to see it, for this skeleton structure of steel now stood for a symbol on the South Mountains, and personal pride demanded that she acquaint them with its meaning.

Annie was sitting, chin in hand, gazing on the miniature-like valley in the distance as old Jerry's grizzled visage rose through the trap-door. First to appear was the battered slouch hat which covered his unkempt hair; then came a thin, wrinkled face, almost hidden in a shaggy, tobacco-stained beard, from which two crafty eyes seemed to look out upon a mad world as from an ambush. He hoisted himself slowly onto the floor and sat with laboring breath on the far end of the bench.



THE LEAVES WERE DRY AND THE THICK CLUMPS OF DEAD CHESTNUT RIPE FOR BURNING. THE ADVANCING RED TONGUES SEEMED FAIRLY TO DEVOUR THE UNDERGROWTH AND LICK UP THE TINDER-LIKE LITTER WITH THE SPEED OF A HORSE

"Durned fool idear, buildin' them steps so steep," he grumbled. "What did they wanta make this jigger so high for?"

"Why, so that you can see forest fires away off," Annie explained.

"Humph! 'Taint right to make an old man sufferin' with as'ma clumb so far."

He rose and looked on the surrounding country—on brown hills made golden by the bright sunshine of the spring morning, on clear silver streams tumbling between green banks clothed with laurel and hemlock—but there was no beauty in it for his bleary eyes.

"It's a blamed waste," he snarled. "What's the land a-comin' to when the poor's taxes is squandered so foolish on sich truck, doin' no good to no-body?"

"But it is doing people good," exclaimed Annie, positive with the courage of her convictions. "Detecting forest fires and putting them out before they do damage is certainly benefiting the state."

"Can't see no sich nonsense."

"It's not foolish or wasteful either. Why, the state may save the cost of this tower on one fire alone. And just think of the timber that will be saved, too!"

"Humph! There's no good in it, I say."

"Now, Jerry, you wouldn't say that if you weren't so spiteful. Just because you have a grievance against Ranger Davis for not paying you for fighting fire on your own land is no reason why you should find fault with the whole Government."

"'Tain't spite neither."

"Yes, it is, too."

"Things like this is made for the rich corporations, not for the poor people."

"No, they are not. You yourself own several hundred acres right against the railroad land; so you have just as much protection as they get."

"Protection!" he snarled. "What kind of protection? Supposin' a fire got into my timber like it did before, can I get damages for it? Tell me that!"

"Why, sure, Jerry; the law protects you. Of course, you must know who caused the fire. When your south tract burned two years ago, you could have collected damages if you had known the hunter that set it."

"Yeh! If I'd a-known! How was I to find him? If I'd a-known who 't was I'd a-filled his durned hide with bird shot, that's what I'd a-done."

"Well, Jerry, if you help keep fires off the mountain in a few years you can sell your timber and make lots of money."

"Humph! Wait ten—fifteen years. I want to sell it now. Maybe I'll be dead then."

"Some one will get the good of it."

"But that ain't me!" he exploded with rising choler. "I ain't got no kith nor kin, an' besides I want the money myself." Then, with a crafty look in his ferret eyes, he added, "An' by crackey, I'll get it, too."

Annie felt that she had better divert this trend of the conversation, so she explained simply to the garrulous Jerry her system of maps and the method of spotting smoke with the fire-finder. He was inquisitive and genu-

inely interested, but years of antagonism to things new had bred in him a distrust of this innovation. His curiosity satisfied, he contemptuously declared the whole kit and boodle a lot of wasteful truck, and left. He returned to his ramshackle home, there to sit brooding idly in the bright sunshine before the door for the rest of the day.

But not so with Annie. She was continually on the alert for smoke; for, although she did not want to see the timber burn, she meant to make sure that if a fire did start, she would be the first to report it. Her new position as "tower-man" was still a novelty for her and she wanted to live up to her name of "one of the eyes of the service."

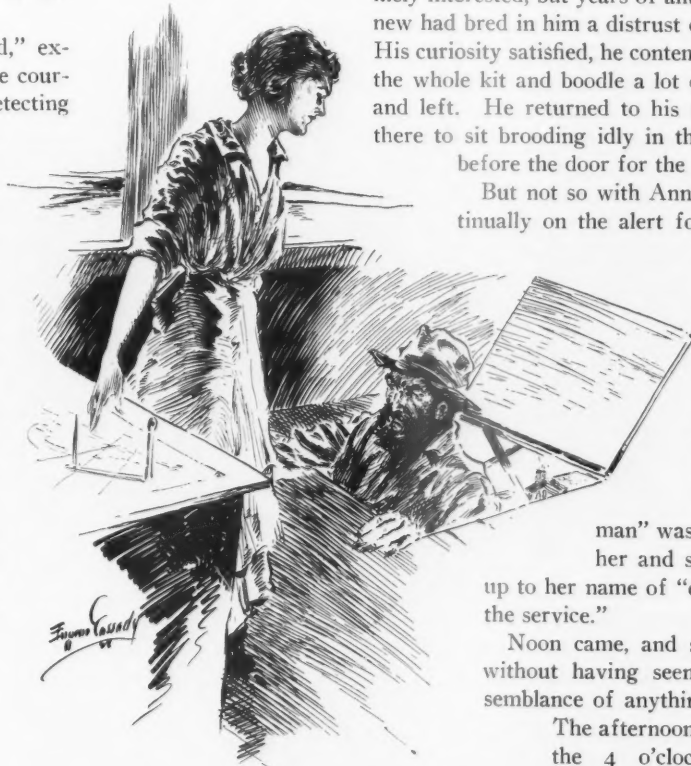
Noon came, and she ate her lunch without having seen the faintest resemblance of anything like forest fire.

The afternoon wore on. When the 4 o'clock train snorted around the foot of the mountain, she was almost sure that it had left a spark behind, but the little curl of smoke which she had instantly detected died away

in less than two minutes. Evening came and she locked the tower and started down the path to her home.

She ate supper and, while her father milked their one cow, washed the dishes. Several times during the evening she walked to the kitchen door to look at the sky. No signs of rain, and it was sorely needed. Annie was uneasy for if this dry weather kept up they were likely to have bad fires. She determined to walk up to the tower for another look at the mountains before going to bed—to be there in time to see the 9:10 train go down the valley.

It was a cloudless night, with just enough moon to make her care to linger out of doors. She notified her father



OLD JERRY'S GRIZZLED VISAGE ROSE THROUGH THE TRAPDOOR. "FOOL IDEAR, BUILDIN' THEM STEPS SO STEEP," HE GRUMBLED. "WHAT DID THEY WANTA MAKE THIS JIGGER SO HIGH FOR?"

of her intentions; then slipped on her sweater and started up the winding trail with lithe, swinging strides.

Ranger Frank Davis just finished shaving as the phone bell rang. Snatching a towel he hastily wiped the lather from his face and lifted the receiver.

"Hello," he answered. "What's that? Fire, you say? Along the railroad? All right. Sure, I'll start at once—yes—yes. A bad one? All right, Annie. Much obliged. Good-bye."

Grabbing a coat and hat, he ran to the barn and loaded the Ford with fire-fighting tools. As he drove around the house he called to his wife, who had come to the door:

"There's a fire near Jenkins' Switch. Call Fred Hoover and tell him to be ready to go when I reach his place. Don't know when we'll be back. Oh, yes, tell Fred to send one of the boys to notify Russells, too. Al Potter is coming over, but we'll need all the men we can get."

With a spurt of rapid chugs, the Ford began its rough journey up the rutted road. The ranger stopped at each of the scattered houses along the way and either took men with him or directed them to follow by team.

When he arrived at the fire he saw that it was considerably advanced, notwithstanding the short time it had taken him to get there. He counted noses and found that he had twelve men—enough for two crews. They started up the side of the mountain, struggling slowly through the thick brush, until they were slightly above the fire. Then they circled and closed in upon the "header." Here the two crews divided, one in charge of Al Potter working down to the right, the other, under the ranger, to the left of the fire.

The leaves were dry and the thick clumps of dead chestnut ripe for burning. The advancing red tongues seemed fairly to devour the undergrowth, and in places would lick up the tinder-like litter with the speed of a horse. The men fell back a piece and began working rapidly, yet with deliberation, cutting brush, raking a path clean of leaves, then digging down, exposing the bare soil, from which a back-fire was set. Soon they began to sweat, and in the crimson glow took on the appearance of grotesque hunchbacks, their bended forms casting shifting shadows behind them as they cut and raked.

An hour passed. Their faces and hands were blackened and hair and eyebrows became singed. They kept the line as far away from the approaching flames as could be done without losing too much timber, but there were maddening moments, when the low-lying smoke was blown up to them as by a draft, bringing blinding tears to the eyes of the weary workers. But they stuck to the line as only those who know hard, unrelenting toil can, and their nearest approach to a complaint or protest was an occasional muttered curse, as one would rub a stinging eye with chapped knuckle, or vent a profane regret that they had not kept farther back from the main body of the fire.

There were tough roots to be exposed and cut, so that no searching flame might find a foothold to burn slowly underneath the line and thus undo their work. There were rocks and stones to be pulled asunder, so that no sneaking spark might remain hidden in the dry

interstices and burst out anew long after they had passed.

As is the way of forest fire, there were times when the approaching breast of flame would die down until it seemed that a few well-directed, smothering blows with burlap bags would extinguish it with ease. Then would come a light breeze, whipping the fire brighter and ever higher, and the sapling oaks, with their dry, persisting leaves, and the young pines, with their inflammable, resinous needles, would burst into instantaneous flames, which, mounting fiercely to their tops, would almost, but not quite, pass over the heads of the obstinate fighters into the unburned timber behind them. During these tense, critical moments, with the ominous crackling in their ears and the hot, stinking smoke blinding eyes and choking lungs, the men continued their calm, side-stepping procession, mechanically cutting and raking, cutting and raking.

They made headway, but it became necessary to cut down the size of the crew, as additional guarding of the ever-lengthening fire line was needed. The ranger brought water forward and sent another man to the rear. The men drank gratefully, although sparingly, rested aching shoulders and stiff biceps for a few minutes, and then pitched in again.

There came a hoarse cry from behind. They straightened their tired backs the better to listen, and then down the hillside floated the words which they so much dreaded:

"Ho, Frank! Ho, Frank! She's over the line, . . . over the line."

With mingled curses they relinquished the progress they had made and climbed up the hill for a quarter mile, to where the fire had crossed the line. They attacked this small, but ever-widening, circle savagely. Here it was a case for quick action, and, grabbing wet burlap bags, they closed in on the hungry flames with a dogged disregard for the blistering heat and brain-befogging smoke—beating, beating, beating.

Finally, they licked it and, leaving a guard to watch the dead area, they stumbled and slid down the rocky slope to their former position. With weary resignation they again resumed the slashing and scraping, but advanced more rapidly, as the most intense portion of the fire was conquered.

The ranger went ahead to scout out the lay of the land, and found that soon they would have it whipped. Standing on a boulder to get a better view, he saw below, in the red glare, a blackened figure smiting frantically and ineffectually at the fire, and at intervals scrambling away, as the flames became unbearably hot. The ranger hailed him:

"Hey, you! What are you trying to do down there?"

The frenzied one looked up and precipitately retreated from the warmth before answering, "Do? Durn you, I'm tryin' to save my timber." Then, after directing an astonishing stream of tobacco juice with neat precision against the clean bark of a young beech, he added, "What th' hell do you think I'm doin'—fishin' for catfish?"

The ranger ignored this clever retort. "Well, then," he called, "come up here, where you will be useful. You ain't putting any fire out that way."

[Continued on page 234]

The Association's New President

George D. Pratt, Formerly Conservation Commissioner of New York, Is Selected to Succeed Col. Henry S. Graves as President of the American Forestry Association

COL. HENRY S. GRAVES, Provost of Yale University and Dean of the Yale Forest School, asked to be relieved on March 1 as President of the American Forestry Association, and Mr. George D. Pratt, of New York, was elected by the Board to fill his place.

Mr. Pratt was formerly Conservation Commissioner of New York for a period of six years and is a national leader in forestry and in other conservation and outdoor movements.

Colonel Graves was elected President of the Association on January 1, 1923, and re-elected for a second term in January of this year. Following his nomination, however, he was appointed Provost of Yale University, and in submitting his resignation he said that the duties of his new position with the university, combined with those devolving upon him as Dean of the Yale Forest School, had so

greatly added to his work that he found it no longer possible to give the time necessary properly to fulfill the obligations of the office of President. He told the Board that it was to him a matter of very deep regret to have to relinquish the Presidency of the Association at this

time, because his interest in the Association is keener than ever, and because he believes its opportunities for service are greater than ever before in its history. Colonel Graves, however, will continue as a member of the directorate.

At the time of his first election, Colonel Graves declared

that he accepted the position as President of the Association because he believed it to be the national organization which can most effectively carry forward the forest movement. His leadership during the time he has been in office has been an inspiration to the executive officers and a stimulation to the whole work and life of the Association. The Board of Directors in accepting his resignation passed the following resolution:

"WHEREAS Col. Henry S. Graves, who for fourteen months has served as President of the American Forestry Association with distinction and constructive

leadership, finds it necessary to relinquish the office because of added duties placed upon him by Yale University; therefore be it

"Resolved, That the Board of Directors accepts his resignation with a deep sense of loss and expresses to him



GEORGE D. PRATT, PRESIDENT OF THE AMERICAN FORESTRY ASSOCIATION

its great appreciation of his untiring efforts and unselfish service in advancing the work of the Association and the cause of forestry generally."

Mr. Pratt, the Association's new President, will bring to the office of President a long and broad experience in administrative work in the advancement and protection of natural resources. Educated at Adelphi Academy and Amherst, Mr. Pratt entered the employ of the Long Island Railroad and later became treasurer of the Chelsea Fiber Mills, in Brooklyn. Always an enthusiastic lover of the out-of-doors, however, he spent much time on



HENRY S. GRAVES, DEAN OF THE YALE FOREST SCHOOL AND RETIRING PRESIDENT OF THE AMERICAN FORESTRY ASSOCIATION

camping and hunting trips, becoming increasingly interested in the wise conservation of the country's natural resources. In 1915 Governor Whitman appointed him to the position of Conservation Commissioner of the Empire State. He held this office for the full term of six years, and during that time was instrumental in the shaping of much wise legislation in the interest of conservation.

For many years Mr. Pratt has been a member of the Camp Fire Club of America, and was at one time its president. He is a member of the Boone & Crockett Club, the American Bison Society, and the National

Association of Audubon Societies. He is the first president of the Adirondack Mountain Club and treasurer of the Association for the Protection of the Adirondacks. He is also a trustee of the American Museum of Natural History, a member of the New York Zoölogical Society, and of the Wild Life Protective Fund, and since 1922 has been a member of the Board of Directors of the American Forestry Association. He has been treasurer of the Boy Scouts of America since its inception, in 1910. Mr. Pratt is also a trustee of Amherst College and of the Metropolitan Museum of Art. As chairman of the Cinema Committee of the latter institution, he is giving much attention to enlarging their collection of motion pictures, to be used in educational work among the school children and general public.

While Conservation Commissioner of New York State, it was Mr. Pratt's ambition to secure an appropriation for the purchase of additional lands in the Adirondacks and Catskills, to be owned by the state. This ambition was realized in 1916, when the state voted in favor of the referendum bill appropriating \$7,500,000 for this purpose. During his administration the commission recommended to the Land Board, and it approved, the purchase of some 400,000 additional acres of land in the Adirondacks, and Catskills. One of the most important things which Mr. Pratt did as commissioner was to develop educational publicity designed to make the people of the state appreciate the value and need of their natural resources. To this end he had motion pictures taken showing the different conservation activities. These, together with a greatly increased number of lantern slides owned by the commission, were shown throughout the state by competent lecturers.

Something to Read

Pass on What Has Interested You

THE Hospital Book and Newspaper Society asks for books, magazines, and papers to distribute in prisons, schools, and hospitals, where, without its help, the inmates would have very little reading matter to amuse and instruct them.

Picture cards, children's books and papers are particularly requested. Any reading matter in any language can be utilized, and co-operation in this collection and distribution is earnestly asked.

Send packages by mail or express to Room 420, 105 East 22nd Street, New York City.

Forest Protection Week originated on the Pacific Coast several years ago. It soon grew to national proportions, and in 1921 President Harding issued a proclamation which placed the Federal Government in general and the Forest Service in particular squarely behind the movement. President Harding issued proclamations again in 1922 and 1923. This year President Coolidge issued a proclamation urging upon all citizens, either in association or as individuals, to make proper observance of the week. All governors will be urged to issue supplemental proclamations, especially in reference to the celebration of Arbor Day during Forest Protection Week.

Deer Is Deer

BY MAUDE G. PRATHER

THERE are pets, and pets, but for one that is loving and lovable, I'll choose a black-tail doe.

Such a pet was Babe, who was found by a range rider when about two weeks old. In a few days she became accustomed to the family life and would sleep nowhere except upon the living-room couch. When turned out, she would run up and down on the porch, jumping at the door and window, making that plaintive little deer noise which resembles a tiny kitten more than anything else, until some one took pity upon her and let her in again.

Before her spots had disappeared, at the age of three months, she had to be denied the privilege of the house, as she had developed an insatiable appetite for house plants and soap. She devoured all of either that she could find, seemingly with the greatest relish.

Her main food, after she was weaned from the bottle, was bread and milk. She would eat slice after slice of bread, and was especially fond of left-over hot cakes. Every morning she would drink a whole pan of milk, sometimes with bread crumbled in it; and, being allowed to run at large, she had all the grass and brouse that she desired.

It was soon decided that Babe must have a mate, which resulted in the advent of Togo, a yearling buck. This necessitated a permit from the Fish and Game Commission.

As soon as Togo's horns became hard, he fought everything that moved. He took especial delight in wrestling

with an unlatched barn door, with which he would tussle by the hour. He had an especial dislike for strangers, but stood in awe of a stick, and would run from any one carrying one. He was a creature of moods—one moment licking the hand of a member of the family, and the next standing on his hind legs pawing the air in an effort to make mincemeat of that person with his viciously sharp front hoofs. He devoured with avidity every scrap of paper that he could find; also any old sacks or rags, and had an especial weakness for the heads and wings of small ducks, chickens, or turkeys, all of which seemed never to affect his general good health.

At the age of two years Babe brought in her first fawns—dainty, spotted fellows, who jumped and trem-

bled at each noise or movement and who fled in terror at the approach of a chicken. By the time they were a month old they had become accustomed to things about the place and came up each morning for their pan of milk with their mother. At the age of three months they would allow themselves to be petted, and became the proud possessors of bells and collars.

Like sheep, the sex of the

babies is always opposite, and at the end of the year the little buck had horns about two inches long, which he loved to have rubbed.

Each June, Babe always brought in another pair within their first week of life. At the age of two her doe fawns likewise had fawns; so the bunch increased rapidly. The bucks scarcely ever reached their third year before being



"BABE," THE SPOILED PET, WITH HER FIRST TWO FAWNS



ON GUARD. THE COLLIE IS TENDER FOSTER MOTHER TO THE FAWN, WHICH SHE ADOPTED WHEN ITS MOTHER WAS KILLED AND IT WAS LEFT ALONE

killed by some hunter, regardless of bells and collars. Automobile parties were the greatest offenders in this respect. At sundown the deer come out to feed in the meadows, often close to the road, and pistols make little noise.

Never being confined, the band wandered together for considerable distances. They were known at one time to be sixteen miles from home, where Togo treed the China cook of a big ranch on the woodpile for several hours. Sometimes they were gone from home for several days, but always returned safely, quite a musical band, with their different-toned bells.

Contrary to the general belief that a

buck has one point for each year, Togo had three points at the age of two years and four points the next year. When he was three years old he became so vicious that his horns had to be sawed off. Never having been hurt, he was afraid of nothing, and even with his horns gone he continued to fight everybody. Before the end of his third year, however, Togo had his leg broken in an altercation with some unknown person, which necessitated his execution.

Several years later Jim became the band's "Monarch." At first he was a most lovable creature, but at four years of age became as treacherous as Togo had been. It soon became a question of safety first, so a rifle bullet settled it



"JIM," TOGO'S SUCCESSOR AS MONARCH OF THE BAND

[Continued on page 222]



WINTER IS THE REAL TEST OF ONE'S DECORATIVE ABILITY IN TREE-PLANTING. TREES THAT LEND THEMSELVES TO BEAUTY OF SETTING IN SUMMER MAY LOOK OUT OF PLACE DURING THE LEAFLESS MONTHS. THIS IS AN EXAMPLE OF WELL-BALANCED TREE ARRANGEMENT, ATTRACTIVE IN SUMMER AND WINTER

Finishing the Home With Trees

By C. R. TILLOTSON

THERE is a place in every yard for shade or ornamental trees, and there are trees suitable for any niche in that yard. Hundreds of species and varieties native to this and other countries give the would-be planter a choice that will fulfill every desire for beauty, ornament, and comfort, and formal or informal effect. There are tall evergreen trees, to serve as backgrounds or screens and to afford pleasing winter effects when the ground is snow-covered and other vegetation bare; and there are dwarf or low-lying evergreens, to be set out at the corners of porches and under the windows. There are deciduous or leaf-shedding trees of every character, for shade and beauty.

What is more beautiful, for instance, than some of the oaks, maples, and gums in their autumn foliage or the white birch when planted in contrast with evergreens?

The vase-shaped form of the white elm and the slender, graceful branches and twigs of the beech, in conjunction with its characteristic light-gray bark, give these two species distinction even during the winter season, when they are bare of leaves.

Some species, such as yellow poplar, black locust, cherry, catalpa, horse chestnut, and magnolia, are graced with beautiful flowers; others, such as cucumber, mountain ash, dogwood, holly, and hawthorn, are gay with bright-colored fruits in the autumn. Every species possesses

DURING the last five years thousands of homes have been constructed in the United States. For each of these homes there is a yard—be it ever so small—and in this cherished spot of Mother Earth the new owner is struggling with the problem of adding the finishing touches to his home. It is not a task of a day or a week, if properly and permanently done. It is an intensely interesting and profitable pastime, extending over many years and yielding immediate rewards.

A house on a barren lot is a barren-looking home. A green lawn adds color, but it does not drive away the cold and unfinished atmosphere of a naked house upon a naked lawn. One's dwelling must be clothed with trees to have warmth, beauty, and setting. It is with trees that the real finishing touches are made. But the work must be based upon a well-thought-out plan, designed for permanence and for given effects. There is good and bad taste in finishing your home with trees, just as there is in furnishing your home with furniture. A little study and advice from those who know will save costly mistakes.

A house in the course of years inevitably depreciates, but trees, if properly selected, planted, and cared for, grow more beautiful and magnificent year by year. A cottonwood planted in your yard today may in fifteen years be an actual nuisance, while an American elm, growing ever more stately and shade-benevolent, may add several hundred, and even several thousand, dollars to the value of your home. Select the right trees for the right effects or combination of effects. In this article Mr. Tillotson tells you exactly how to plant your trees, or have them planted, so that they will grow, not like sickly things, but like the vigorous and wonderful gifts of Nature which they are.—THE EDITOR.

an individuality—a point not to be overlooked in planning your tree family.

A great many trees grow successfully in the United States, but discrimination must be exercised in selecting those for any particular section of the country. In each section certain trees occur naturally. It is usually safe

to choose the natural species for planting, for obviously they are adapted to both climatic and soil conditions of the locality. Quite often the home planter may wish to try some species that he has read about or seen growing in some distant part of the country. A great deal is constantly being learned about trees just because people do plant such species. Success often crowns their efforts, but failure is perhaps more common.

An introduced species may be utterly unable to withstand the summer's heat, the winter's cold, or other local conditions unfavorable to it. Although a great deal of interest may attend the trying out of such trees, it is not a good idea to plant them on any extensive scale. This is particularly true of large trees, for these are usually expensive. The safe course is to choose native species or trees which neighbors have planted successfully, or those which are recommended by local reputable nurserymen. If it is possible to do so, it is a good idea to visit the nursery and look over the trees that are for sale and have been recommended. That will afford an opportunity of judging whether they are just what is wanted for the particular purpose in view, whether that be shade, ornament, or something else.

SECURING THE TREES

The automobile has stimulated people to go to the woods and dig up trees for planting in the home grounds. The practice seems to be more successful with some species than with others, and when small rather than large trees are moved. White elm, silver maple, and willow oak, for instance, are three species that succeed very well when transferred from the woods, and there are doubtless others which will do so. The difficulty in moving a tree from the woods to the lawn is that in digging the tree it is usually possible to secure only a small portion of the roots. The fine feeding roots, about the size of cord or thread, are usually broken off or cut off and left in the ground. Such trees, of course, are at a great disadvantage when set out and are likely to suffer accordingly. Too often the result is death of the trees and wasted time and effort on the part of the home-owner.

Nursery-grown trees, on the other hand, usually have compact, well-developed root systems, because they have

been transplanted one or more times. This is an important point to keep in mind when trees are to be secured, because such roots do much to assure success of the planting operation. Nursery-grown trees, accordingly, are preferable to those secured from the woods.

Nurserymen usually ship evergreen trees, and some deciduous ones also, with a ball of earth, held in place by burlap, around their roots. The trees are dug and shipped this way so as to disturb the roots as little as possible and to keep them moist. When such trees are received, this ball of earth should be covered and kept moist until the trees are set in the ground. The object of this is to keep the roots moist. It is very important that the roots of trees should not be allowed to dry out through exposure to the air, sun, or any other heat. If the roots are not

enclosed in a ball of earth, a ditch should be dug as soon as the trees come from the nursery, the roots placed in this, and loose damp dirt thrown over and pressed closely around them. This is usually called heeling-in.

Some nurserymen advise that the roots be dipped in a thin batter of mud before they are heeled in. They should remain heeled in and the soil around the roots kept damp until everything is in readiness to set them out. Evergreen trees—pine, spruce, and fir—are particularly susceptible not only to damage, but to death, if the roots dry out. The sap is resin-

ous, and if it dries no amount of watering or subsequent care will avail to revive it and make the tree live. It is preferable, for that reason, to purchase balled-root evergreen stock, particularly if the trees are to be shipped from a distance. Such stock is usually more expensive, because there is more trouble involved in preparing and shipping it from the nursery, but there is practical assurance that the trees are not already dead when received. Green tops are no proof that the trees are in good condition.

SIZE OF TREES TO PLANT

It is not uncommon for commercial nurserymen, who have special equipment for handling large trees, to plant successfully for their clients deciduous trees 10 or 12 inches in diameter and 30 or 35 feet tall, and evergreen trees up to 25 feet in height. Such trees are entirely too



THE FIRST REQUISITE IN PLANTING A SHADE TREE IS A BIG, DEEP HOLE. A COMPARISON WITH THE SIZE OF THE YOUNGSTER GIVES A VERY DEFINITE IDEA OF THIS ONE



A NURSERY-GROWN TREE, WITH A FINE, HEALTHY BUNCHED MASS OF ROOTS, READY FOR PLANTING

easier to plant, and usually are much less likely to die after planting than the larger ones. For ordinary shade and ornamental purposes, hardwood trees one or two inches in diameter and coniferous trees two to four feet in height are plenty large for planting. If adapted to the region and site and planted carefully, the trees will grow thriftily after they have been set out for a year or two and will soon reach a large size.

SEASON FOR PLANTING

There is no hard-and-fast rule in regard to the best season to plant trees. Given the proper treatment, nearly all trees can be planted successfully either during the spring or fall. Some nurserymen have preference for certain seasons, however, and will deliver some species of trees only during those seasons. When a tree is removed from a nursery, it of course undergoes some shock, and unless ball-rooted is deprived of its contact with the earth, from which it derives its moisture and sustenance. When set out in a new place, its roots must put out new growth and establish contact with the soil in this location. This takes time and it also takes an effort on the part of the tree. If the tree is in leaf, the roots have to supply the leaves with water at the same time they are striving to establish themselves in their new surroundings. It may not be possible for them to perform this double function, with the result that the leaves will wither and the trees, perhaps, die.

large, however, to handle without special equipment; they are very expensive, and they are, in fact, altogether much larger than is necessary for ordinary purposes. Smaller trees are cheaper,

It is wisest, therefore, not to attempt planting except during the season from fall until spring, when the tree is dormant or nearly so. In the spring, it is best to plant just as soon as possible after frost is out of the ground; in the fall, during the period of six or eight weeks preceding cold weather. Where there is little or no cold, freezing weather, as in parts of the Southern and Western States, trees can be planted at any time during the fall, winter, or spring when they are not growing actively. Preference should be accorded the rainy winter season for planting in those parts of the country.

Some nurserymen of experience claim that the best time to move pines, spruces, and similar evergreens in the eastern portion of the United States is during the last two

weeks of August and the first part of September. The roots are dormant at that time, but renew their activities later in the fall. If the evergreens are planted during the period mentioned, the roots will make vigorous growth and the tree will be well rooted and established in its new location before freezing weather occurs.

With the exception of birches, silver maple, scarlet maple, yellow poplar, and sweet gum, trees can ordinarily be planted safely during the fall in that portion of the eastern United States bounded roughly on the west by the Mississippi River, where timber grows naturally and thriftily. The same is true for



THE TREE SHOULD BE SET IN THE MIDDLE OF THE HOLE FULLY AS DEEP AS IT SET IN THE NURSERY, WITH THE ROOTS WELL SPREAD OUT

western Washington and Oregon and the Coast redwood region of California. Spring is the season most generally recommended for planting in that broad expanse of territory beginning with the eastern edge of the



AFTER WATERING THOROUGHLY, LOOSE SOIL IS SHOVELED IN ON TOP TO SERVE AS A MULCH

prairie and stretching west to the Cascade Mountains of Washington and Oregon and the coast of California.

SOME TREES TO AVOID PLANTING

In planting for shade or ornament, it is better to plan for something that will endure for several generations. Large, old, stately trees add much to the appearance of property and enhance its value materially. Unless there is special reason for wanting very quick growth or unless other kinds of trees will not grow well in the region, the planter should avoid the use of such short-lived species as cottonwood, silver maple, and boxelder. In addition to being relatively short-lived, these particular species are rather easily broken by winds, and the maple and box elder harbor objectionable insects in numbers.

HOW TO PLANT

If species are selected that are hardy in a region and good stock is procured for planting, there is no good reason for failure. The planting itself is easy to do right, if simple instructions are followed. It is essential, however, to keep in mind that a tree is something more than a piece of wood with tops and roots; it is a living thing, which thrives on fair treatment and often succumbs to foul treatment. In planting a tree the hole in which it is to be planted should be sufficiently deep and broad that the roots can be spread out in a natural way to their full length. The first point to be observed, then, is to be sure to have the hole big enough. If it is larger than necessary, no harm is done; if it is too small, the tree will not have the

best chance to develop. In digging the hole, the better top soil should be separated from the poorer soil that comes from the bottom of the hole. If there is no good soil, some should be provided for working in around the roots.

The tree should now be taken from where it was heeled in, all ragged root ends cut off with a sharp knife, and set in the hole. The roots should be spread out well, in their natural position, and lowered until the tree sets at least as low in the ground as when it grew in the nursery. Some nurserymen recommend that trees be set two to four inches lower than the depth at which they grew. The good soil should now be pulled in over the roots, worked thoroughly among and around them, and pressed firmly. Well-rotted manure or some bone meal can be mixed with this earth. As soon as the roots are fairly well covered, the soil should be tramped or even tamped as solidly as a post would be tamped. Then more earth can be added and tramped until the hole is filled to within about three inches of the top. Then copious amounts of water should be poured in. This will settle the soil thoroughly around the roots and also supply them with the moisture that they need to send out new roots and become established. After the water has settled through the soil, fill up the remainder of the hole with soil, but do not tramp it. Allow it to stay loose and serve as a mulch. Trees planted in this manner should grow.

Trees whose roots are covered with a ball of earth wrapped in burlap should be planted in much the same manner. The roots, burlap and all, are set in the hole, good earth pulled in around the ball and firmed, the tree

[Continued on page 243]

Before and After Taking

BY DAVID T. MASON

THE first picture shows a redwood logging operation in progress in 1888; the second picture, made in 1923, shows how the exact same spot looks today.

The first picture has been used many times to illustrate "forest devastation." In this, one sees many stumps of redwood trees; some trees and logs lying on the ground not yet removed in the process of logging; the characteristic "bull team," with its six or eight yoke of animals, hauling out logs; debris left by the logging operation (some of which would be merchantable today, but worthless a generation ago), standing snags, and a few live trees (especially Douglas fir) left standing. So the first act leaves on the stage a scene of apparent "devastation" after the harvesting of the crop of old-growth timber.

No sooner does the curtain drop than Nature begins work at resetting the stage. Groups of sprout redwoods spring up and grow vigorously around the blackened redwood stumps. The live Douglas fir trees scatter seed

over the ground, and small Douglas firs come up, to race with the redwoods toward the sun, mightily encouraged by the rich soil, the long growing season, and the bountiful rain. Luckily no fire comes to interfere.

A generation, and the curtain rises again in 1923; the "devastation" is replaced by one of the finest volunteer second-growth forests to be found in the world. The trees, averaging about 30 years of age, are 10 to 20 inches in diameter and 60 to 90 feet tall. The young trees do not fully stock each acre, but there are hundreds of them—enough to give an average stand of about 25,000 board feet per acre.

Redwood sprouts, seed trees, and no fire have given this fine young stand. Present logging methods in the redwood region clean the ground much more completely than those of the "bull-team" days, now taking the seed trees with the rest. However, the seed trees can be spared, for the important group of redwood lumbermen who have set about reforesting their lands find that seedlings raised in nurseries are more prompt and more com-



THE CURTAIN DROPS ON THIS PICTURE OF DEVASTATION IN 1888

pletely effective than the seed trees in re-establishing the young forest on the cut-over land.

The area in the photographs is in Bear Gulch, a branch of Ryan Slough, on the property of McKay & Company,

near Eureka, California. The slashing in the foreground is to permit the construction of a logging railway. The second photograph was made when Prof. Donald Bruce, Major Swift Berry, and the writer "discovered" the spot, on September 23, 1923.



AND RISES AGAIN ON THE SAME SCENE TODAY, SHOWING HOW NATURE HAS RESET IT IN THIRTY-FIVE YEARS



William James Beal, Michigan's Pioneer Forester

BY CLIFFORD W. MCKIBBIN

THE standard-bearers who led the young men of our fathers' college years to victory, or who assisted materially in propelling them toward a goal mapped out for them in the college curriculum, have indeed flaunted many a "banner with a strange device." One of the slogans impressed on the student mind by Dr. William James Beal is both strange and striking. Dr. Beal, Michigan's pioneer in the preaching and teaching of forestry in the Wolverine State, believes that the way to ascertain facts and retain them is to dig them out first hand one's self. His oft-repeated admonition to his classes in botany and forestry, as they bent over their microscopes, to "keep on squintin'," became famous through several generations of students at the Michigan Agricultural College.

A friendly reflective squint at the Doctor today, just on the eve of celebrating his ninety-first birthday, when we have focused our lenses by the knob of his gold-headed

cane (the gift of the people of Amherst, Massachusetts, to their oldest living male citizen), shows an interesting grouping of facts.

Dr. Beal began a crusade for conservation away back in the seventies, when Michigan was well launched in her white-pine slaughter and lumbermen and timber-owners said, "There is no end to it." He realized what a huge mistake Michigan was making, and in 1875 wrote: "Lumbering has always been overdone in this state. It is in most places very slovenly and wastefully done. Labor is so high and timber so cheap that the best is culled here and there—only a few trees; the tops and refuse are left on the ground. They are likely to burn in a year or two and destroy the rest of the standing



DR. BEAL, TRULY A "BLAZER OF THE TRAIL," ON THE EVE OF CELEBRATING HIS NINETY-FIRST BIRTHDAY

timber. It is a great pity that this fearful destruction by fire is not or cannot in some way be prevented."

Dr. Beal was one of the earliest advocates of a comprehensive state forest policy. Lecturing before farmers'



THE "PINETUM," A SEVEN-ACRE GROVE OF WHITE PINE PLANTED BY DR. BEAL IN 1896, AT THE MICHIGAN AGRICULTURAL COLLEGE—STRAIGHT, FINE TIMBER—PROOF POSITIVE OF WHAT A LITTLE VISION, PATIENCE, CARE, AND PROTECTION CAN PRODUCE

institutes and agricultural societies, his constant urge for a state forest and conservation plan finally resulted, in 1887, in the passage of a law and the establishment of, first, a Forestry Commission and later the Conservation Commission. He was one of the three members of the first Forestry Commission appointed by Governor Luce.

As head of the Department of Botany and Forestry at Michigan Agricultural College, he has been in the forefront in the long siege for the cause of conservation of our forest resources. He has written over 125 published articles, bulletins, and booklets on forestry subjects. When he retired from active work in 1911, the Michigan Agricultural College conferred upon him the honor of Professor Emeritus of Botany, a distinction he now enjoys.

Dr. Beal's first notable work in forestry, and one which brought him recognition, was the preparation of an exhibit of forest products of Michigan at the Centennial Exposition, in Philadelphia, in 1876.

In 1875, "anticipating the future use of it," Dr. Beal began a small plantation of trees on the college campus, which soon became known and established as the Arboretum. Some two acres in area, it now contains over 150 species. Commenting upon it, he says: "As there were no patterns to follow at that time, mistakes were made in the planting; but the mistakes have been just as instructive as the successes."

In 1906 the "Pinetum" was planted. It is a 7-acre plantation of white pine, originally set about eight by ten feet apart. The seedlings were grown in the college nursery, which Dr. Beal started and which has since been developed into the largest forest nursery in the state. Now the "Pinetum," planted less than twenty years ago, has become a most attractive and unique grove of young pine timber, a wonderful object-lesson to students, farmers, and foresters.

A half century ago Dr. Beal said: "The full beauty of our forests is best appreciated by the student who knows and studies each one as friend talks to friend. To enjoy to the full our forest scenery, one should know botany and landscape gardening and something of drawing and painting. To such a person, a trip through the woods is a perpetual delight which cannot be understood by the uninitiated. The mixture of evergreens and deciduous trees, the shrubs, the autumn tints, the streams, the hills and valleys—our beautiful lakes, with the different seasons of the year and different phases of the weather—lend a perpetual charm and freshness to our Michigan woodlands."

Few lengthy lives present, upon intimate examination, such a wealth of achievement at which it is an added delight to "Keep on squintin'."



Wide World Photos

MT. KATAHDIN BY MOONLIGHT. THIS BEAUTIFUL MOUNTAIN IN THE NORTHERN PART OF MAINE WAS PHOTOGRAPHED ON THE NIGHT OF NOVEMBER 7, 1919, FROM PITMAN'S CAMP, ON THE WEST BRANCH OF THE PENOBSCOT RIVER, AT 10 O'CLOCK, ENTIRELY BY THE LIGHT OF THE FULL MOON. THE "STAR TRACKS" SHOW AS FAINT LINES, BECAUSE THE EXPOSURE TOOK ABOUT HALF AN HOUR

The Appalachian Trail

*From Maine to Georgia by Foot Trail—a Little Hike of 2000 Miles—
Along the Skyline of the Appalachian Ranges*

BY RAYMOND H. TORREY

IN ITS novelty and its bigness, the Appalachian Trail promises to be a truly American project with tremendous possibilities in health-giving recreation to millions of people. It is to be a trail cresting the eastern mountains and shunning the traveled highways; a trail where men and women may leave behind the strife and turmoil of the city, the smell of gasoline and the consciousness of self-adornment, and may revel in the glowing exercise of tramping a wooded path the two ends of which are two thousand miles apart.

The Appalachian Trail idea has been growing in the minds of trampers for many years. It is not a dream. The trail is actually taking shape and is stimulating enthusiasm of tramping folks throughout the east. The project is being quietly carried out without the support

of any endowment agencies and purely by volunteer efforts of outdoor people. In recent years it has been stimulated by the development of trails in the North Atlantic States and to a lesser extent in the Southern Appalachian region.

The system of trails in the White Mountains of New Hampshire, made during the past forty years by volunteer workers of the Appalachian Mountain Club, with the co-operation of the United States Forest Service and by other walking and climbing groups, was the earliest ganglion of the great spinal cord. The Long Trail of the Green Mountain Club, in the Green Mountains of Vermont, now 235 miles long, from the Massachusetts line almost to the Quebec border, was another. One of the earliest seers of this great trail was Prof. Will S. Monroe, of Montclair, New Jersey, a trail-finder in America and

Europe. As organizer and president of the New York Section of the Green Mountain Club, Professor Monroe built forty miles of one of the most scenic portions of the Long Trail, from Camel's Hump—where his section is to build a comfortable lodge, near the 4,000-foot summit, as a tribute to his services to outdoor recreation—to Middlebury Gap, which the section maintains. Professor Monroe early conceived the idea of a trail from Delaware Water Gap, along the Kittatinny Mountains, across the New Jersey and New York highlands, and through the Taconics and Berkshires to join his beloved Long Trail.

Two years ago the Appalachian Trail in full was formulated by an independent idealist, Benton MacKaye, who presented the project to the American Institute of Architects. Mr. MacKaye interested the Institute in the idea in even larger aspects than merely a hikers' trail; he conceived it as the spinal cord of what he termed an "Appalachian Domain," a great Atlantic seaboard forest preserve, along which might be developed centers for camping and other outdoor recreation and agencies for conservation of forests, reforestation, better agriculture, and reclamation of waste lands. The Institute, through its committee on community planning, has retained him to study and promote the idea.

Mr. MacKaye's broadened vision of an Appalachian Trail quickly found support in New England and New York among organized hikers. There had been in existence for some years the New England Trail Conference, a federation of about thirty outdoor clubs. The Conference took up the idea, heard Mr. MacKaye present it, and is encouraging its constituent bodies to link up such sections of their trails as will fall in the line of the pro-

posed route. Much of the Appalachian Trail in New England is, therefore, done, except for marking it as such and linking up existing stretches of the Green Mountain Club, Dartmouth Outing Club, Appalachian Mountain Club, and United States Forest Service trails with new intervening portions where necessary. Events are working toward an agreement as to the definite route and a uniform marker.

The general route across New England, as visioned by Mr. MacKaye and agreed to by the Conference, is from Mount Katahdin, Maine—though some enthusiasts see it starting in the Gaspé Peninsula, in New Brunswick, the northeast tip of the Appalachians—across the Pine Tree State, via Moosehead and Rangeley Lakes, where much new work will have to be done in scouting and trail clearing, to the New Hampshire border, across which, into Maine, the Appalachian Mountain Club in the last few years has been extending its trail system eastward.

In New Hampshire the route would be over the Carter Range and the high Presidential Range to Mount Washington; across the wild country between Crawford and Franconia Notches to the Great Stone Face; south to Lost River and Mount Moosilauke, where it would pick up the trails of the Dartmouth Outing Club and follow them south to Hanover and the Connecticut River.

Across Vermont to the Long Trail, on the main western ridge of the Green Mountains, there are two alternatives. One is by a new trail being laid by the Norwich University Outing Club, which would strike the Long Trail near Lincoln Mountain. The other, more direct, is by road, via Woodstock, to Bridgewater; thence by trail to the summit of Mount Killington, on the Long Trail, or by



A MOUNTAIN MEADOW IN THE GREAT SMOKIES OF NORTH CAROLINA, WITH MOUNTAIN TOPS ABOVE THE CLOUDS AS A BACKGROUND, TYPICAL OF THE COUNTRY NEAR THE SOUTHERN TERMINUS OF THE "APPALACHIAN TRAIL"

highway, with a bus line, to Sherburne Pass, where is the new Deer's Leap Lodge of the Green Mountain Club, built at a cost of \$15,000 by Mortimer Proctor and his mother, Mrs. Emily Proctor—one of the finest mountain lodges in the world.

Southward the Appalachian Trail may follow the Long Trail to the Massachusetts line, and there join paths marked by the Williams College Outing Club, to Greylock, highest of the Berkshires. South of Greylock there are no definite trails, but there are possible routes, which are being scouted, along the New York-Massachusetts border to the high plateau at the corner of these states and of Connecticut, including Mount Everett, 2,600 feet, and Bear Mountain, 2,300 feet, highest in Connecticut.

Along the Connecticut-New York border some scouting has been done, and the general route will include bits of state forest and the rugged hills west of the Housatonic, entering New York at Ten Mile River over Schaghticoke Mountain. It crosses Dutchess and Putnam counties on the line; Pawling, Boyd's Corner's Reservoir, Tompkins' Corners, Oscawanna Lake, Canada Hill, to Anthony's Nose and to a crossing of the Hudson by the suspension bridge now building, across to Bear Mountain and the great Palisades Interstate Park established in 1910, now one of the finest sources of public recreation in the United States, visited in 1923 by seven million people.

Here Mr. MacKaye's idea found ready soil. Before it was promulgated, members of the New York City walking clubs, working through the Palisades Interstate Park Trail Conference, had begun to mark a system of trails over its forested ridges, apart from motor highways, where the hiker could escape the stench of gasoline. This system now covers seventy-five miles, and the Boy Scouts, who have one of the greatest camps in the park, have marked forty miles more in their White Bar Trail.

The park trail workers, all volunteers, supplying tools and food and paying expenses by subscription, welcomed the Appalachian route and reorganized, as the New York-New Jersey Trail Conference, to undertake the great trail in these two states. A uniform marker was adopted, a three-inch square of sheet copper, embossed with a monogram A-T, and appropriate lettering, the whole enameled

white. The Interstate Park section, from Bear Mountain to the Ramapo River at Arden, was recently completed, the first considerable section of the route to be opened.

West of the Ramapo the route as scouted crosses the lands of the Harriman estate, which embrace in one tract twenty-five thousand acres of forest land, nearly half of which Mrs. Harriman gave to the Interstate Park. This part is soon to be marked as the Harriman Section.

The trail is planned, if property-owners consent, to pass over the rugged mountains west of Greenwood Lake to the New Jersey line; thence across Wawayanda Plateau and the Wallkill Valley to the Kittatinny Mountains. Here it finds further welcome in High Point Park and in the Stokes State Forest. Thence it follows the ridge, which the state hopes eventually to acquire, to Delaware Water Gap.

Through Pennsylvania, for lack of developed agencies to make the trail, it is so far largely on paper, but the route will be via the Blue Ridge, past Pottsville, Harrisburg, and Gettysburg, to Harpers Ferry, Maryland. In Maryland and Virginia, groups in Baltimore and Washington are giving attention to the project and doing some scouting, and Dr. Geddes, of the University of Virginia, at Charlottesville, is interesting faculty and students in the route, along the eastern rampart of the Shenandoah Valley and south to the North Carolina line.

Along the North and South Carolina and Tennessee lines the trail is partly a matter of future years of scouting and development, partly a matter of linking up forest ranger trails in the national and state forests. Mr. MacKaye originally planned it to end in the highlands of northeastern Georgia, but has since inclined to Lookout Mountain, in Tennessee, as a terminus of scenic and historical importance.

Increasing interest in the Southern Appalachians on the part of northern hikers, who are turning to the Great Smokies, is likely to lead some of them South, to turn their experience in New England and New York into giving this part of the Appalachian Trail the best possible scenic qualities, under the guidance of the National Forest rangers.

Fire continues to be the greatest single agency of forest destruction. For the seven years, 1916-1922, inclusive, the average annual number of forest fires in this country was 36,100. During this time nearly 11,000,000 acres were burned over annually, 7,000,000 acres of which was forested land. The yearly damage, exclusive of intangible and indirect losses, such as destruction of young growth, death to wild life, and devastation of recreational values, was nearly \$16,500,000.

Twenty-six states are making definite efforts to protect their forest land, aggregating 166,000,000 acres, from fire. From July 1, 1922, to June 30, 1923, they expended for this purpose \$1,826,430.

Here is what a few fires have done in the past. In 1871 the Peshtigo fire in Wisconsin burned 1,200,000 acres of timber and cost 1,500 lives. In 1881 another fire in Michigan burned 1,000,000 acres and cost 138 lives. In the spring of 1894 the Phillips, Wisconsin, fire burned to death over 300 human beings. In the fall of the same year, in Minnesota, fire ran over millions of acres in that state, and in Wisconsin devastated the towns of Hinckley, Sandstone, Barronett, Perley, Clayton, Shell Lake, Cumberland, and Granite Lake, and killed over 400 people. In 1918 the terrible Cloquet, Minnesota, fire turned \$30,000,000 worth of timber and property into ashes and cost over 400 lives. In 1922 millions of dollars' worth of privately owned timber and logging equipment were destroyed in Washington and Idaho.

The All-year Christmas Tree

BY MRS. JOHN D. SHERMAN

Chairman, Department of Applied Education, General Federation of Women's Clubs

OF ALL the plants that grow, none are more intimately associated with the American home than trees. Their influence is marvelously diverse and environmental. The trees of the forest, in more than fifteen hundred different ways, are woven into our daily lives. No product of the earth has the same variety of uses.

The houses in which we live are the gift of the trees, if not in whole, at least in large part. Another gift is paper, which carries the printed word into our homes and our schools. These two products—homes and paper—underlie the standards of American life today, because they stand for home life and intellectual progress.

I know of no more ready way to quicken the interest of the small children in trees and to demonstrate their vitality of growth than through the living Christmas tree. Every child loves a Christmas tree. Every child is entitled to one. There are those who advocate that the Christmas-tree custom be eliminated, root and branch, as an unjustified waste of trees. This seems an unnecessarily inhuman remedy, a denial to our children of a beautiful custom long established and one which can be made to carry an added message to the child.

We have throughout the nation ample land from which to produce all the Christmas trees needed by our children.



Photographs by courtesy of "The Little Tree Farms."

PLANT YOUR TREE DURING GARDEN WEEK!

Then you will have, all ready for the Christmas festivities, just the sort of tree you prefer, and instead of an annual liability, to be charged off under the head of "Christmas expenses," you will have an all-the-year-round asset, green and friendly and ready to come into the house and take its place as the center of the family's holiday celebration.

When the forests disappear the cost of home-building goes up and the standards of living decline. Similarly, when the cost of paper rises, opportunities to advance intellectually become less accessible. We have built from the harvest of abundant forests, which Nature provided, but we are leaving to our children a domain of denuded land, made treeless by our harvesting. What are they to do with it?

Here is one of the big educational problems of the day. It is the least of our obligations, as good citizens, to teach our children how to solve a problem which we ourselves have created. We must instill into them not only a knowledge of the value of trees to the home, the state, and the nation, but an appreciation of the growing power of trees and their ability to provide, in the course of the seasons, the multitude of products essential to American standards of living.

They can be grown in the wild fields, around the edges of our woodland, along our country roads, and in our own home grounds. In the smaller cities and towns and in the country districts, the school-house yard usually provides room for a plot of trees and offers the opportunity to demonstrate to the children the lesson of the growing tree. Christmas trees can be raised in six or seven years, and, where soil and moisture conditions are especially favorable, in less time. What a splendid custom it would be for schools throughout the country, which have ground available, to have the little children, when entering the first grade, plant a Christmas tree. Before they leave the school their trees would be ready for Christmas use. Year after year this corner of the school yard would teach its lesson, and so impress the children that it would become a living part of the school days.

Another way in which this same idea can be instilled

in our children and at the same time advance real conservation is through the wider use of the living Christmas tree. This custom is happily coming into greater and greater favor, and merely involves the planting of a live Christmas tree in a tub or box, setting it in the yard, and then at Christmas time taking it into the house and letting it serve its purpose until after the Christmas festivities are over. It is then replanted in the garden. Trees handled this way will serve as Christmas trees for several years. When they become too big, they can be set in the yard permanently and a new and smaller tree purchased, and the practice repeated as long as desired.

One of the most important parts of our Garden Week program is the planting of trees of all kinds; but, because of the vital lesson which can be taught the children, the planting of Christmas trees is especially emphasized. During Garden Week last spring, every householder in Des Moines was urged to plant a Christmas tree on his lawn. A great many did so, and at Christmas time they made these living trees bright and festive with colored lights. The same program will be carried out this year, and it will not be long before Des Moines, which we think of as a prairie city, will be known as the Christmas-tree city.

National Garden Week is April 20 to 26. Friday of that week is for our planting of trees. Let us take advantage of this especially assigned day to plant little liv-

ing Christmas trees, and so broaden the adoption of the use of the living tree at Christmas time, rather than one which lives in a blaze of glory for a week or so, only to find an ignominious end in the ash-heap.

Our appeal for tree-planting in the observance of our first National Garden Week last spring met with quick response. People who had not become interested in gardens became eager to plant trees and shrubs. The Doylestown, Pennsylvania, Nature Club carried out a program that every community would do well to follow. They devoted the entire week to enlisting the services of every civic organization. On land owned by them, they planted a tree for every one of their members, nearly three hundred, and then made it a bird sanctuary. If there is not room for a Christmas-tree garden in the school-house yard, there are usually public-spirited men and women or organizations which will provide the needed plot of ground.

Trees are our friends. We cannot have too many of them. They are the greatest of all our natural resources; for, in addition to their own special value as trees, they are the conservers of those vital resources, soil and water.

Every child should be given the opportunity to plant a tree, to get acquainted with its needs and habits, and to learn how to give it the care that will insure its growth.

Deer Is Deer

[Continued from page 210]



THREE OF BABE'S OFFSPRING FEEDING HAY ON THE SNOW

once and for all. The last year of Babe's life, when she was eleven years old, she had three fawns. One was much smaller than the others, but was thrifty and lived and grew until frightened into a wire fence by strange

when there was snow on the ground and hay had been thrown out for them. There was no way of estimating the number of bucks which had been killed by would-be hunters, but it is certain that it was not small.

dogs, where its neck was broken.

Babe never noticed a strange man, but let a strange woman appear and she was ready for a fight. This may be accounted for because of her great attachment for the mistress who had raised her from a fawn and whom she followed about like a dog.

Her death came naturally. She laid about for a few days, not going out to feed, but drinking her milk as usual. She seemed neither sick nor in pain, but the last day refused her milk and died during the night.

She left thirty-five known living progeny. The youngest were quite wild and would only come up to the outbuildings

Fire Signs That Speak

An Exhibit in Miniature of New Fire Prevention Posters

**"Make Every Week Forest Protection Week,
By Using Signs Which Flash and Speak."**

IF ANY one of the posters reproduced in miniature on this and the following two pages were posted alongside your forest road or trail, or at the spot where you stop to camp, would it catch your eye?

Of course, it would. What's more, it would have your undivided attention for a moment or two, and during that brief interval it would speak to you in such a human, poignant way that thereafter you would be mighty careful where you threw your cigar stumps, or how you left your camp fire. And you would be in the best sort of humor about it. The fact is, forest fires would take on a new meaning to you. Your own personal interests, so clearly and aptly portrayed by the sign, would just naturally make you want to co-operate in keeping forest fires from starting.

Isn't that the high test of a good forest-fire prevention poster? We think it is. It meets the psychology of modern salesmanship. To be highly efficient, a sign, above all things, must be chock-full of human nature. It has got to speak its little sermon in a way so clear and simple and forceful that not only city folks, but backwoods people as well, can understand — and relish.

The series of posters here reproduced is so unusual in this respect, as well as in others, that we believe it will command instant recognition as an invaluable contribution to the cause of better forest-fire protection wherever the posters are used. The possibility of reducing our fire costs and our fire losses by the use of these signs impressed us so strongly the minute we saw them that the American Forestry Association has offered its facilities to encourage and promote their wide use by the states, the Federal Government, fire protective and other organizations, timberland owners, railroads, and

all other agencies working to reduce the annual destruction by forest fires.

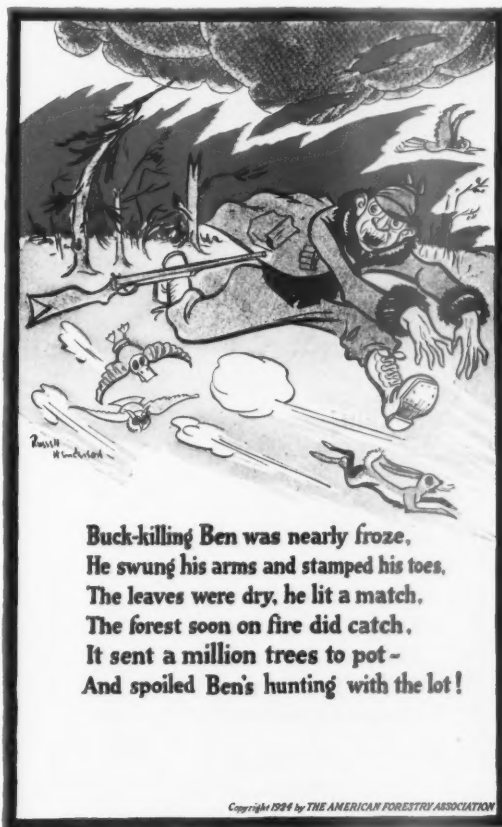
As a first step, the Association is reproducing the posters in miniature in order that judgment may be passed upon them. It is our plan, in the event there is sufficient demand, to have the posters printed on durable material and available early in the spring. At the bottom of each

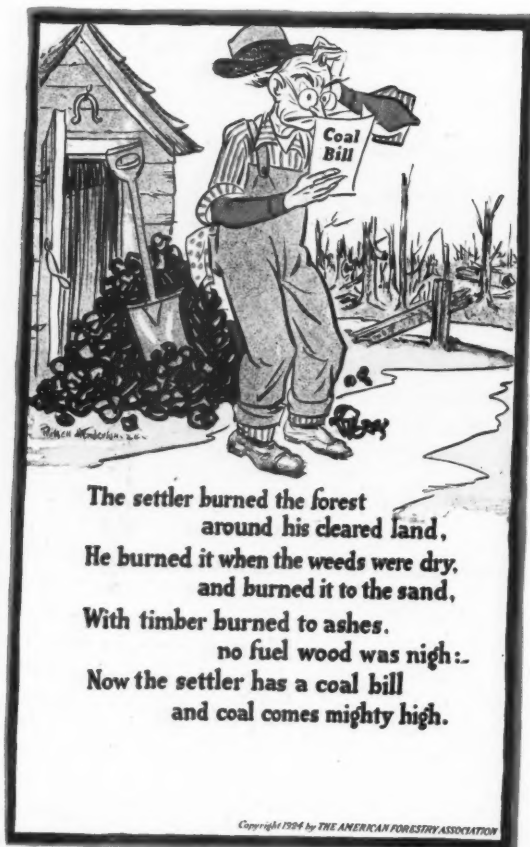
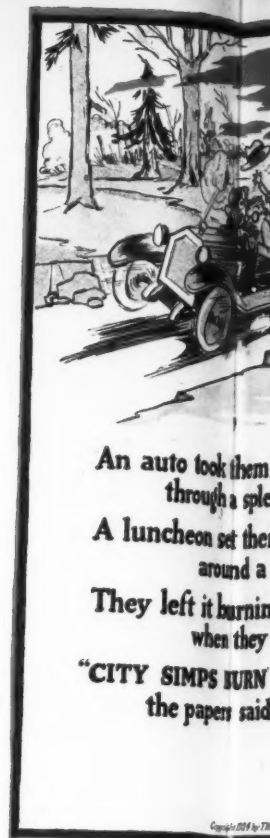
poster sufficient space will be allowed to insert the name of the individual or organization using the poster, which will identify publicly such individual or organization with the fire-prevention campaign.

It is hoped that sufficient orders will be placed for these posters to make it possible for the Association to supply them at a very moderate cost. The posters are to be printed in the colors shown, and will be suitable for posting not only along roads and trails, camp sites and in the woods, but in towns and cities. They are also adapted to printing in small sizes, to be used as stuffers in outgoing mail, etc. Those interested in procuring a supply of these signs should write the Secretary, American Forestry Association, 1523 L Street, Washington, D. C., without delay, indicating the approximate number of each which they could use.

Forest protection begins with fire prevention, and ought

to end there, too; but it doesn't, mainly because fire prevention is full of human equations. We shall never be able to reduce the number of man-set fires to zero, but by using the very best fire-prevention signs, and more of them, we ought to reduce our fire hazard 50 per cent or more. A fire sign that does not get across its message, or irritates the reader, is a dead loss. The sign that educates and inspires cheerful co-operation is a money-saver. Forest fires that never happen are a mighty big asset.





Putting Punc Prevent

THIS series of posters represents
in educational methods in forest-fire pre

It is anything but arbitrary or official
theless, in a way that people are bound

Each of the most important causes of

Each is pictured by a cartoon—clever

Each is climaxed by a jingle—clever

The two combine to form an irresistible
because it stirs sympathy and co-operation
antagonism.



to took them riding
through a splendid wood.
heon set them eating
around a fire good.
left it burning freely
when they went away:
SIMPS TURN FOREST";
e paper said next day.

Copyright 1924 by THE AMERICAN FORESTRY ASSOCIATION



The STATE put up the money
and raised a lot of game,
Filled each field and forest
with stock of every name.
The hunters flocked in season,
smoking every one,
They left a trail of fire
that spoiled their future fun.

Copyright 1924 by THE AMERICAN FORESTRY ASSOCIATION

Punch in Fire vention

ers represents an important innovation
forest-fire prevention.

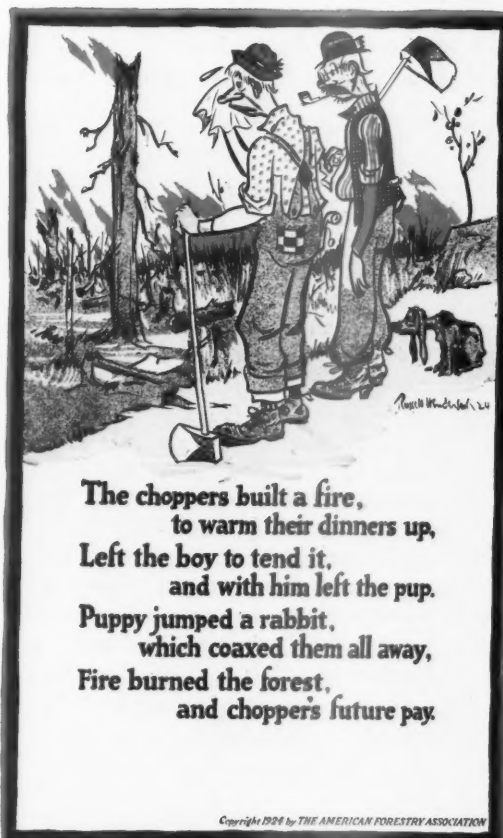
ary or official; but it hits home, never-
le are bound to grasp.

ant causes of fire is touched upon.

rtoon-clever, amusing, HUMAN.

a jingle-clever, amusing, TRUE.

m an irresistible message—irresistible
and co-operation without arousing



The choppers built a fire,
to warm their dinners up,
Left the boy to tend it,
and with him left the pup.
Puppy jumped a rabbit,
which coaxed them all away,
Fire burned the forest,
and choppers future pay.

Copyright 1924 by THE AMERICAN FORESTRY ASSOCIATION

Isn't it better business to spend a few hundred dollars more on effective fire prevention than to gamble against an expenditure of many thousands of dollars for fire fighting, and loss of labor and property, not to mention human life?

Forest fires are the greatest single agency of forest destruction in this country. Every year they sweep some eleven million acres, exacting a toll in damages that reaches many millions of dollars, and steadily weakens the productive power of our forests. In striking at the fire evil, we must hold uppermost in mind the fact that 80 per cent of these fires are caused by man. In reducing the fire hazard by large steps, therefore, our main objective must be to educate man to his own selfish interest in keeping fire out of the woods. Fire posters offer one of the best mediums for this educational work. Obviously, the sign itself is a problem in psychology, one which calls for the most

There is much of the boy in most of us, Hazard reflected, and we are apt to repel, almost unconsciously, an arbitrary command. Hazard therefore set out to make some signs which would have a more human appeal to people at large and would bring home to them in personal terms the terrible meaning of forest fires. Reaching out for what would catch the popular fancy, he thought of jingles and cartoons.

Here entered the artist—Russell Henderson, a well-known newspaper and advertising cartoonist. Henderson likes the outdoors. Particularly fond of fishing, he heard that the Batso River, in Burlington County, New Jersey, provided wonderful sport. He decided to try it, but found he would have to apply to the forester of the Warton estate. That forester was J. O. Hazard. Henderson got his permit, erected a log cabin that was half studio and half fishing camp. He spent the summer on Batso River.

Forest Fire is the Great Destroyer

*It Blackens 56 Million Acres Every Five Years
It Destroys Lumber And Robs The Homebuilder
It Diverts Labor And Disrupts Industry
It Stops Production And Robs The Community*

modern and ingenious salesmanship. Progress in fire posters has long been wanted. Here it is.

Now you will want to know something of the story back of these unusual fire posters. First, persistence on the part of a forester who has been studying the fire problem for years; second, an artist—a lover of the woods—trained and experienced in the great school of modern advertising.

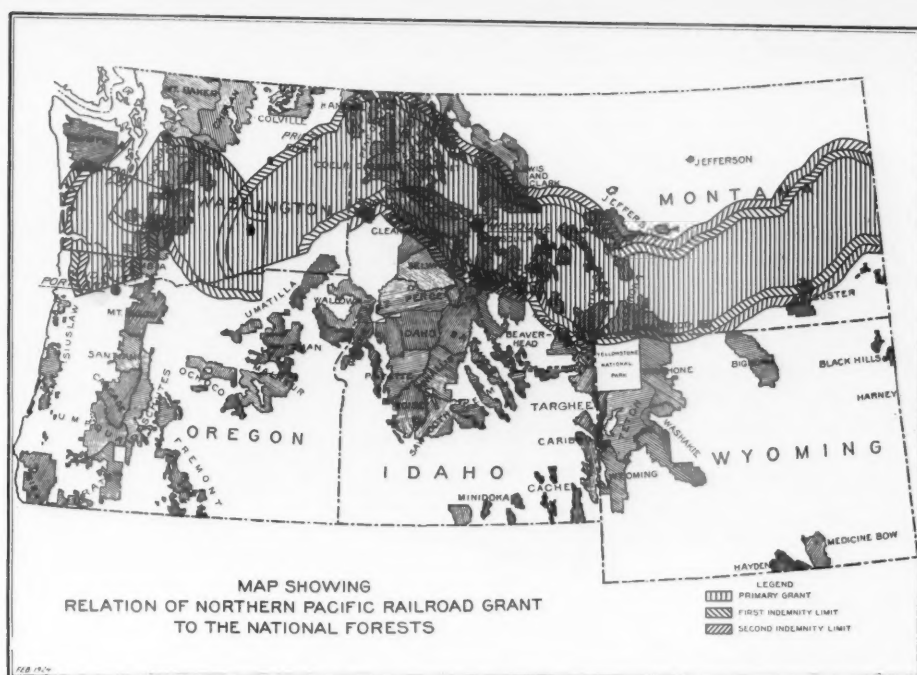
The forester is J. O. Hazard, who for years has been right out in the woods protecting timber from fire and working with the local people, endeavoring to educate them to what forest protection means and how to attain it. This problem became almost an obsession with Hazard; for forest fires seemed so inexcusable. Surely, he reflected, there is some way to prevent them. Despite publicity of every kind, still man-caused fires continued from year to year; therefore something must be wrong. Finally, he concluded that the difficulty lay in the tone in which the usual fire sign approaches the public. There was the official note, the demand, the incomplete or indefinite message, the absence of any humanizing influence.

As he began to study these notices, each seemed stern and lacking in its power to strike a responsive chord in the person unschooled in forest craft. The psychological effect was too often negative. The vital spark was lacking.

He and Hazard became good friends. Over bowls of Irish stew and cans of salmon they began to talk forest fire. Finally Hazard broached the subject of his ideas and desires.

Henderson, accustomed in his cartoon work to considering the public's viewpoint, immediately grasped the big idea. They set to work and put in each spare hour they could capture, and at the end of a year they had produced jointly the series of six posters which are shown here. To J. O. Hazard, forester, and to Russell Henderson, artist, therefore, belongs the full credit for the creation of these signs.

The American Forestry Association is glad to have the opportunity to make these posters available to every one. Every state, every association, every individual interested in promoting forest-fire prevention should use them. There is no effort, no attempt, that we cannot afford to try in order to reduce the staggering number of man-caused fires. Once we can arouse the public, overcome its inertia, enlist it on our side, much of our work will have been accomplished. These posters will be powerful weapons in accomplishing these very things. If they have any faults, a trial will bring them out and they can be improved upon and more widely distributed next year.



Government Contests Land Claims of Northern Pacific Railroad

NATURAL resources valued at \$30,000,000 may be saved to the people of the United States as the result of a resolution introduced in Congress last month, asking that approximately 3,000,000 acres of land in Montana, Idaho, and Washington, claimed by the Northern Pacific Railroad Company, be declared public property. The resolution is the result of a joint request from the Department of Agriculture and the Department of Interior that Congress investigate the validity of the company's claim. The lands are located in the National Forests of the states mentioned (see map above) and have been withdrawn and administered by the Government for many years.

According to the Forest Service, the Northern Pacific Railroad is attempting to make selections and secure titles to these lands, on the ground that they are entitled to them under the terms of the company's land grant. Hearings on the resolution were begun early in March by the House's Public Lands Committee, and developed much testimony of a more or less astounding character. Representatives of the Forest Service maintained that the railroad company is not only not entitled to select a single additional acre, but that an accounting from the railroad may justify the cancellation of patents to all grants of land still retained by the corporation. In substantiation of this claim, the Forest Service is contending that the land grants were made for the purpose of aiding in the construction of the railroad, and that the sale of grant lands by the railroad up to June 30, 1917, exceeded the construction cost of the railroad by almost 100 per cent. It further asserts that the company has rendered its grant lands subject to forfeiture by failing to comply with the grant

terms in respect to the time allowed for the construction of its road, the sale of its land to settlers, and erroneous classification of land as mineral.

Other charges made by the Forest Service are summarized below:

That the Northern Pacific failed to dispose of hundreds of thousands of acres of its lands at public sale, as required by law.

That under a rule of law laid down by the Supreme Court, the Northern Pacific has been erroneously allowed 1,500,000 acres too much land in the State of Washington.

That over 500,000 acres of land credited to the Northern Pacific should be deducted because of conflict with the land grant of another road and the erroneous fixation of the land-grant limit lines.

That approximately 640,000 acres of land have been erroneously allowed the Northern Pacific by reason of the Tacoma overlap.

That the Northern Pacific has received approximately 600,000 acres of land to which it was not entitled under its grant in the Wallula overlap.

That for lands erroneously patented to the Northern Pacific the Government should be entitled to receive at least what the railroad received from the sale of these lands, instead of \$1.25 per acre.

That the Northern Pacific, under the Mount Rainier Park Act of March 2, 1899, relinquished to the United States thousands of acres of commercially valueless land and received therefor selection privileges applicable to the finest lands it could find in the States of Oregon, Washington, Idaho, Montana, North Dakota, Minnesota, and Wisconsin.

The Flaming Goat

Wherein Don Romero, the Unctious Pretender, Relates a Strange Story of Forest Fire, and Produces an Alibi Unprecedented in a Land of a Million Alibis

By E. L. PERRY

FOREST Ranger Bill McCoul and Deputy Supervisor West dragged leaden feet about the boundaries of the forest fire and pronounced it under control. Wherefore they issued minute instructions to the patrolmen left on the line and gave themselves over to the invention of new and exquisite forms of torture for the sheep herder from whose camp the fire had undoubtedly spread.

Soot and sweat begrimed, they climbed the windward ridge to their picketed horses and dropped weariedly upon a granite outcrop to rest. Ranger Bill had made a burnt offering of his eyebrows and lashes and part of his front hair, while the Deputy nursed a bulbous and blood-stained nose, acquired when its owner, blinded and strangling with the acrid smoke, had gone into head-on collision with a large and unyielding spruce tree.

Below them the fire area, now shorn of the grandeur which marked the conflagration at its height, spread out in all its sinister ugliness. Gray smoke billowed and eddied in the air currents above it, shot through now and then with the lurid flames of a still burning snag. Piles of white ashes marked the place where a fallen tree or a stump had been consumed, and gaunt young trees raised blackened and naked arms, as though death had overtaken them in the posture of supplication.

The officers took stock of the tragedy in silence and congratulated themselves upon the fact that they had been able to control the fire within an area so small. It was a neat and efficient job, accomplished by virtue of an expertness born of much experience and a willingness and enthusiasm begotten of the spirit of the Service.

As he looked, Deputy West fingered his swollen nose ruefully.

"I'd certainly love," he stated, "to refertilize that burnt-up ground with that Mexican sheep herder's remains!"

Ranger Bill grinned with his red-rimmed eyes. "You'll feel better about it when your nose goes down," he opined consolingly. "But if you've got your wind back, let's rack out. We'll find Don Antonio's new camp over on the other side of the creek somewhere, and we'll just swoop down and find out what's new in the way of alibis today."

"New alibi nothing! There ain't no such animile," the Deputy declared with conviction. "They've all been taken up from the 'I-moved-my-camp-yesterday' kind to the story of the unknown horseman who passed the camp at daybreak smoking a cigarette. I've listened to no less than a million of them myself."

Ranger Bill chuckled. "You don't know Antonio. I have a hunch that he will not only admit having been camped here at the time, but will also tell us exactly how the fire started—with details. And he will emerge from the story wearing a laurel wreath, two coats of whitewash, and a golden harp. You wait and see."

Splashing across the brawling Rito Amargo, they came in sight of the newly pitched camp. It presented an aspect of perfect pastoral tranquility. The long shadows of evening had fallen across it, and the herder and camp-tender were busy about the little tent and camp fire. The herd grazed upon the still sunny hillside above in charge of the watchful dogs, and the tiny bells of the lead goats tinkled musically. At the barking of the dogs the sheepmen faced about and gazed at the oncoming officers.

"The big fat one is Antonio," the Ranger murmured. "Some make-up, eh?"

Deputy West gazed at him, fascinated. A red flannel undershirt clothed Antonio's body to a point considerably abaft of amidships, and was there relieved by a pair of bright blue trousers, much garnished with fancy pockets, belt loops, cuffs, and dozens of light pearl buttons. The trousers did their best by Antonio by starting at the lowest possible point on his protuberant paunch, but even then failed miserably to reach a dignified distance down his podgy shanks. Thus, another piquant note of color was added by the brilliantly red and green striped socks which the Mexican women manufacture from the native wool for their menfolk.

Antonio moved the coffee-pot which he was tending to a safe distance from the fire and waddled out to meet the forest officers. Cordiality oozed from every pore.

"Ah, Senores!" he exclaimed with surpassing unctious. "Alight. My poor camp is yours."

"Pedro!" he yelled to the camp tender. "Bring hobbles for the horses of the Senores; and if there be any grain in the bag, bring that also, for these are high-bred horses and require rich food. And be certain to smooth out the saddle blankets, that they may dry and be without wrinkles in the morning"—

"No, no," Ranger Bill interrupted. "Mil gracias. But we must return home tonight."

"But, Senor, it grows late, and it is far to the ranger station." Poignant disappointment was writ large upon Antonio's upturned face.

"True," the Ranger returned firmly, "but we must, nevertheless, return. Don Antonio," he said gravely, "we have come here upon a matter of the most serious import."

It is in regard to the forest fire that occurred at your camp this morning."

"Ah! But yes, Senor. That so deplorable fire!" Antonio breathed. "It was of an intensity most terrific, was it not, Senor? But I can see that it was, for the Senores have been terribly injured thereby. And the beautiful trees that have been destroyed! And the succulent grasses! *Que carrambas!* It is a terrible thing, fire. And no man may tell when it will strike or what destruction it will wreak!"

"You are right about that," Deputy West agreed grimly. "And now what explanation have you to make regarding your negligence in allowing your camp fire to spread and cause all this damage?"

Antonio stared at the Deputy in round-eyed astonishment that changed slowly to pained incredulity, and then to visibly shrinking horror.

"Name of the Virgin!" he whispered hoarsely. "Surely the Senor jests! Is it possible that I, Antonio Romero, who have ever been as a very brother to the *Guardo Bosques*, whose very heart is filled with love for the beautiful forest, am accused of this terrible act? Am I, then, to be saddled with the sins of that devil-possessed goat which I was unable to stay in his mad career of destruction? Ah! that accursed goat? Would that his mother had died while he was yet in the womb!"

"Goat!" demanded the astounded Deputy. "What goat?"

"Ah-h, Senores!" Antonio breathed. "Forgive me. For a moment my soul was filled with bitterness, but I now perceive that you have had no inkling of the true inwardness of this affair, which is but natural; for how should you suspect that the fire was caused by a goat, even a goat possessed of a devil, as this one surely was? It is truly most unusual. A thousand pardons for my hasty speech. But come, Senores, it is the hour for supper, and you must hear this story in full, to the end that my name may be cleansed of the last trace of the foul slime of suspicion."

Ranger Bill glanced at the Deputy, who nodded assent.

"It is with pleasure that we accept your kind invitation," he said ceremoniously.

"I am overcome with gratification," the herder declared, and hastened away to prepare for the comfort of his guests.

The forest officers dismounted and tied up their horses. Ranger Bill nudged the Deputy joyously.

"What did I tell you?" he whispered. "A goat! Shades of Nero! Strain your ears, old-timer, this is going to be classic."

They strolled over to the fire and seated themselves on the sheep pelts that Antonio spread upon the ground for them. The herder heaped their plates with bits of fried mutton and potato from the Dutch oven, and set out the inevitable pot of frijoles and chile and plate of tortillas. The forest men ate heartily, as one is apt to eat even frijoles and tortillas after several hours of desperate fire fighting, and in accordance with the laws of Mexican etiquette forbore to mention the business in hand. Finished, they rolled cigarettes while Pedro gathered up the tin dishes.

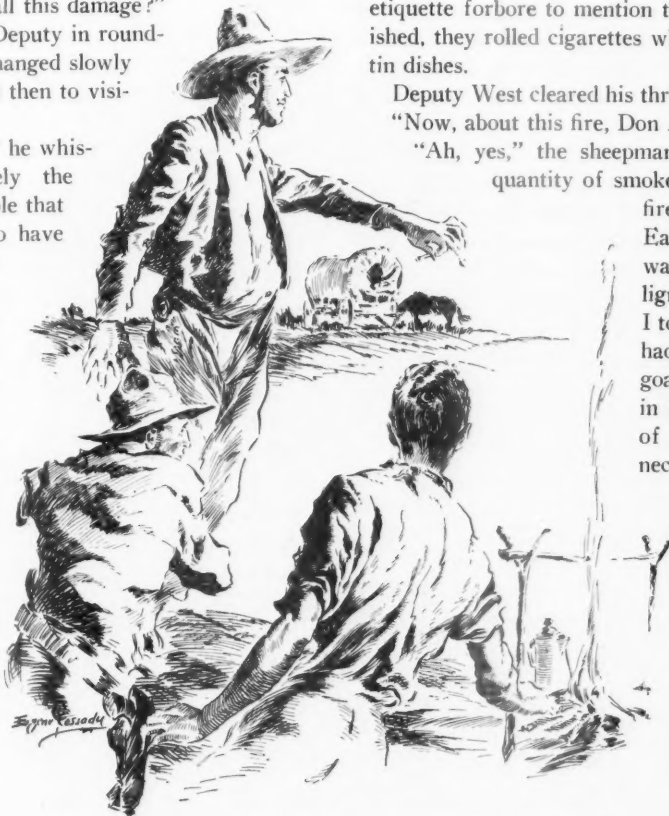
Deputy West cleared his throat.

"Now, about this fire, Don Antonio," he prompted.

"Ah, yes," the sheepman agreed, exhaling a vast quantity of smoke. "About that so terrible

fire and that miserable goat. Easily I can now see that he was possessed of a most malignant devil. But how was I to know that, Senores? He had always been an excellent goat—a most valuable goat, in fact. He was the pointer of my herd. It was but necessary to shout *cabresto!*

and indicate the direction, and that goat would lead the sheep whither I would. Once, when I journeyed to the railroad with my lambs, I was offered a hundred dollars for him for use in the loading corrals. Ah! it was marvelous. Senores, how that wise old goat led the sheep into the cars and



"But the proof is near at hand. Pedro," he commanded dramatically, "bring the goat!"

then slipped out and left them within.

"But he became possessed of a strange disease, Senores, that covered his body with tiny sores. I know not what it was. Maybe it was the scab disease that attacks the sheep. Perhaps it was but the devil within him seeking release through the skin. I know not. But I pitied him and sought to relieve him of his sickness. *Por Dios*, Senores, had I known how he would repay that kindness, he should have perished by inches ere I laid hand upon him!

"I am but human, Senores. How should I be able to foretell that when I came to doctor his sores with kerosene he would become infuriated and filled with a bitter hatred for me? He fought like a wild-cat, Senores, and

Pedro and I had hard work to hold him upon the earth while I rubbed the kerosene upon him. When I had finished we released the creature. A moment he laid there as though in thought, then with a single movement he leaped to his feet. He turned his hate-filled eyes upon me and, in the manner of one uttering a blasphemous oath, said 'Bla-a-a.' Then, without warning, he wheeled about and leaped into the middle of the camp fire, and instantly was transformed into a living ball of flame. Ah! You are incredulous, Senores, and well you may be. I do not hold it against you. Scarce could I believe my own eyes when it happened.

"Immediately I began to divine his purpose, Senores, and, filled with horror, I started toward him. But he ran from me—ran as though pursued by Satan—and when he was safely out of my reach he laid down in the pine needles and rolled over. When he arose the needles were afire. And, as I believe in a just God, Senores, he turned his blazing eyes upon me and said, 'Bla-a-a!' Pedro and I dashed toward the crackling blaze to put it out, and the mad creature wheeled and sped on, the flames of his coat trailing behind him like the tail of a comet. Every few yards he paused to kindle a new fire; and, you may believe it or not, Senores, each time he arose he looked at me and said, 'Bla-a-a' with the bitterness of a damned soul.

"*Mil diablos!* Very shortly we were completely surrounded by fires; for the accursed animal, with diabolical cunning, had run in a great circle about the camp. It became obvious that we could not extinguish them alone, and that we must at once move our camp and the sheep away from there. So we ceased our efforts and in great haste threw the camp upon the burros and drove them and the sheep to this place.

"When we had arrived here, Pedro commenced to unpack the burros, but I stayed his hand. 'This is not the time to think of our comfort,' I said to him. 'We must now go back and fight that fire. Though we perish of exhaustion and the sheep become scattered to the four winds of heaven, we must fight the fire!' So we took our camp shovel and ax and hastened back. But when we reached the river I saw you and your men coming over the hill. Ah! That was a brave sight, Senores. Like the wind, you rode—so swift, so fearless! That was riding after my own heart.

"So I said to Pedro, 'The good God has spoken the news of the fire in the ears of the *Guardo Bosque*, and he is even now come to teach it its place. Let us go back to our sheep, for we are not skilled in the fighting of fire

and we should only serve to hinder the work. And is it not well known throughout the land that whatever the *Guardos Bosques* set their hands to, that thing is accomplished thoroughly and with dispatch?' Thus said I to Pedro."

"And that is the true story of the beginning of the fire, Senores. It is well nigh incredible, but the proof is near at hand."

"Pedro," he commanded dramatically, "bring the goat."

The forest officers sat up. "The goat?" they demanded in unison.

"But yes, Senores," Antonio gravely assured them, "this very same goat. Have I not said that he was possessed of the cunning of Satan? When we returned to the river we found him standing in a pool of water. Only his nose was thrust out, and little curls of steam arose from the surface. So we captured him there and tied him up, lest he commit a greater devilment."

The foresters looked at each other, then looked hastily away. Soon Pedro arrived, dragging the goat behind him.

There is something mirth-provoking about the preternatural solemnity and dignity of a goat at best; but this one was ludicrous beyond the ordinary. His bony body and scrawny neck were almost entirely naked and only his luxuriant beard had escaped unscathed. Of course, a generous singeing, with a wet blanket handy. But the illusion was perfect. The officers gazed at the goat fascinated, and the animal regarded them with unblinking gravity. Then he flitted his tail and said, "Bla-a-a."

It was too much. "Oh my Gawd!" moaned Deputy West and rolled hastily upon his stomach and buried his face in his arms. Strangled sounds came from beneath him and his shoulders shook convulsively. Ranger Bill spun around with his back to the herder and groped frantically for the bandana in his hip pocket.

Pedro shot a startled glance at them, then looked doubtfully at Antonio. The herder winked ponderously back at him.

"Ah, Pedro, my son," he said, and his words fairly dripped compassion, "let us not attend upon this moment of sorrow. The Senores are overcome by the depravity of this wicked animal. Let us take him away and rub salt in his wounds that he may be chastened and see the error of his ways. For is it not written, 'An eye for an eye, a tooth for a tooth?'"

Nine million persons visited the 146 National Forests during 1923 for recreational purposes. It is estimated that over 4,250,000 people visited the National Forest regions of California alone during 1923 and 475 campers' and smokers' fires occurred in the National Forests of the State during that time.

The Forest Service has estimated that within the five years ending in 1920 over 160,000 forest fires were reported in this country. These fires swept an area of 56,000,000 acres and destroyed timber and property valued at \$85,000,000, exclusive of indirect and intangible damage to young growth, water resources, and recreational facilities.



EDITORIAL

The Why of a Forest Policy

THE people of the United States are using wood in more than fifteen hundred different forms. Every man, woman, and child uses the products of the forest every day. There is scarcely an industry, large or small, that does not depend upon the forest as the source of one or more of its raw materials. Since the days of Miles Standish, we have drawn upon our original forest capital—the slow accumulating growth of centuries—for our wood needs. The end of our forest capital is now in sight. Unfortunately, we are not blessed with an Aladdin's lamp with which to rub back with magical quickness millions of acres of destroyed forests. From whence will come the staggering quantities of wood needed to keep our country going?

When he appeared before the Senate Committee on Reforestation, Mr. Samuel T. Dana, Director of the Northeastern Forest Experiment Station, brought home the situation with unusual force.

"Within another thirty or forty years," he said, "the forests will be virtually exhausted. We shall then have to grow our wood like any other crop or go without. But growing timber on anything like a scale required to meet our present needs is no easy matter. We are now removing from the forests each year some twenty-five billion cubic feet of wood. To produce this amount, with our present average annual growth of 12.8 cubic feet per acre, would require more than the total land area of the United States."

Our present forest growth, however, is low, Mr. Dana pointed out, due to lack of forest protection and forest management. It amounts to only 24 per cent of the annual drain upon the forests. In order to make our annual forest growth equal the present drain upon the forests, we

will have to increase the former practically 312 per cent, or to an acreage production greater than that of almost any other country. Crude forestry, universally practiced, will help, but it will not answer.

"Good intentions will not suffice," declared Mr. Dana. "Fire protection will not suffice. Equitable taxation will not suffice. Crude forestry will not suffice. If every owner of forest land should start tomorrow to handle it as conservatively as he knows how, or even if the Chief Forester of the United States should be given a free hand to do exactly as he pleased with the forests of the entire country, we should be better off than we are today, but we should still fall far short of growing enough to meet our present deficit.

"In order to balance forest growth and forest consumption, we must restore to full production 81,000,000 acres of denuded lands, only 0.04 of 1 per cent of which is now being planted annually, and 250,000,000 acres of second-growth lands, most of which are producing only a fraction of what they might. We must also cut our remaining 138,000,000 acres of virgin forests so that they will be replaced by fully stocked stands of desirable species. These things can be done only by practically perfect protection of the forests from fire, insects, and disease, by extensive planting, and by proper silviculture—in other words, by the application of the most effective methods of forest management."

In the face of this situation, can there be any doubt as to the urgency of the immediate enactment of the McNary Bill? We must start, and start promptly, to handle this problem in a big way.

Selling Forest-fire Prevention

THE seven days, April 21-27, inclusive, have been designated by Presidential Proclamation as Forest Protection Week. During that week the American people are asked to give common thought to the protection of our forests from fire—one of the most destructive and at the same time unnecessary scourges the new world has fallen heir to. Forest Protection Week is in no sense a time set apart to lament the annual wastage of our forests by fire. It is a call to fire the American conscience with the national need of forest-fire prevention.

Unfortunately, the average city dweller too often refuses to become even mildly aroused over forest fires. He thinks of forests as something distant and apart from him and his well-being. He often misses entirely the real idea of Forest Protection Week, just as when at vacation time he goes into the woods and misses the idea of a trail poster warning him against forest fires. He is one of the 90-odd per cent of American citizens who have not yet adequately been sold forest fire prevention.

To reach him and the rest of his kind is one of the

biggest problems of forest protection. It is the big objective, not only of Forest Protection Week, but of every week in the year when fire will burn in the woods. Eighty per cent of all the fires occurring in the United States each year are caused by people who have not grasped the lesson which Forest Protection Week is designed to teach. Swarming along the roads and through the forests during the summer months, these people are the greatest fire hazard with which our forest forces have to contend. To extinguish a fire after it has started has been pretty well mastered by our forest departments, provided abnormal weather conditions do not intervene. But to prevent fires from occurring is a problem still in its infancy, mainly, we believe because the human psychology of salesmanship has been neglected.

Eight out of every ten forest fires would not occur if fire prevention could be effectively taught to our citizens. Year after year, thousands of signs warning against forest fires are posted along our roads, our forest trails, and at points where people gather for recreation, and yet the percentage of man-caused fires refuses to decline. It is, we believe, time to give serious thought as to whether or not fire-warning posters are employing the best psychology needed to carry home the message of fire prevention.

Thus far fire signs used by practically all organizations

have been of a serious character. On another page in this issue, *AMERICAN FORESTS AND FOREST LIFE* presents an innovation in fire posters. They are based on a psychology of salesmanship which we believe will give them instant recognition as an effective means of fire prevention. Posted along the road or in the woods, they will catch the eye immediately, then bring a smile, and finally, in simple and homely words, deliver their message so pointedly that anyone who can read will understand. The finished posters are the result of the ideas and work of Mr. Russell Henderson, an advertising artist of Philadelphia, and Mr. J. O. Hazard, a forester of many years' experience in forest-fire prevention work. We believe that these posters represent such an advanced step in fire-prevention advertising that the Association has undertaken to promote their wide use as a constructive step in reducing forest fires throughout the country.

Forest Protection Week is everybody's business. To be sure, it is a comparatively new custom, but, like the whole program of forest-fire prevention, it needs new ideas. It needs to bring forward the best, the most modern, and the most human art of salesmanship. *AMERICAN FORESTS AND FOREST LIFE* is therefore gratified to offer what it considers a modern fire-prevention idea in a form that will really prevent forest fires.

Lumbermen and the Future

LUMBERMEN are often criticized for not handling their forest lands under a plan of continuous forest production. One explanation of why they do not was given by George D. Long, secretary and manager of the Weyerhaeuser Timber Company, when he appeared before the Senate Committee on Reforestation:

"Our business is largely the selling of timber in this district instead of manufacturing lumber. We are selling timber to a great many different operators in the State of Washington. Time and again I have said to these gentlemen, 'Why don't you buy more timber?' They say, 'Long, so long as you will pay taxes on that timber and carry the investment, I will take my chances on what you will charge me for the timber.' I can give you the names of fifty individuals in this state that are afraid to own timber for the future supply of timber operations. . . .

"The tax we paid in the year 1922 on that 86,000 acres of cut-over land averaged 16.9 cents per acre—practically 17 cents per acre. It is growing at about the rate of 5 to 10 per cent annually—that is, the taxes, not always the assessment, not always the valuation, but the tax we have to pay. Now, if we pay that tax and if we assume, as I think we have a right to, if we judge by the past or the present, that the tax is going to be a constantly increasing tax, and that we have to take care of our property by fire protection, which costs money, we can't see enough certainty in the future to warrant us in attempting the task,

because it is a job that involves a continuous outlay for 50 or 60 years, and we will have to go it blind for 50 or 60 years as to what the burden will be to carry that under our existing tax laws.

"I would say right here, just as an illustration of our viewpoint: If the State of Washington, or the Government of the United States, would pay the taxes on the logged-off land that we own, we will pay all fire expense and divide the profits with them, at the end of 60 years, fifty-fifty. We will enter into a contract tomorrow with the State of Washington to give her 10,000 acres a year for the next 20 years if she will take off the tax, and we pay the fire protection, and at the end of that time we will give them half the returns, just as a stimulant for somebody to buckle up against the job, because it is that kind of a job."

There is no doubt that present methods of taxing forest properties form one of the chief barriers in many regions to the general practice of forestry. So long as the growing of timber offers no reasonable prospects of profit, lumbermen and others cannot be expected to embrace it as a business undertaking. And yet taxation as applied to growing forests is not an insurmountable barrier. It is the man-made product of our body politic. It can be changed and, as Mr. Long said, all of us ought to be working on the problem. If we want forests produced by private initiative, we must create conditions which will give some assurance of profitable returns in the future.

National Park Policy

A NATIONAL PARK for the southern Appalachian region is being much discussed among park advocates. Several bills already have been introduced in Con-

gress which would provide for the establishment of national parks in different parts of the South. Their introduction undoubtedly has been stimulated by the

recommendation of the director of the National Park Service that the establishment of a national park in the Appalachian range be considered.

In most sections the mere mention of a national park is a signal for different localities to advance their claims to world recognition in the firmament of wonder lands. After all, the conception of the average citizen as to what constitutes a national park is very vague. Therein lies a real danger to our national park system. Secretary Work has, we think, taken a very wise step in enunciating in clear terms the department's policy in regard to the creation of new national parks.

"Under the theory and practice of the United States Government since 1872, when Yellowstone Park was created," declares the Secretary, "our national park system is made up of areas enclosing scenery of quality so unusual and impressive or natural features so extraordinary as to possess national interest and importance as contradistinguished from local interest. Such outstanding examples of typical world architecture as the Grand Canyon, exemplifying in unequaled grandeur the highest accomplishment of stream erosion, or the rugged portions of Mount Desert Island in Maine, which are incorporated in the Lafayette National Park, exemplifying unique rock forms in association with quite extraordinary eastern forests, compelled immediate recognition of national park values.

"The national parks, therefore, must not be lowered in standard, dignity, and prestige by the inclusion of areas which express in less than the highest terms the particular

class or type of exhibit which they represent. Size is not important, so long as the proposed park includes within its boundaries those scenic elements that meet established standards. . . . Duplication of exhibits already in the national park system must be carefully avoided in order that the individuality of the members of the system may be maintained."

Whether or not a national park should be established in the southern Appalachians must not depend either upon local opposition to it or local advocacy of it. If these mountains contain an area or areas which measure up to the rare standards set for our national parks, then national consideration should control.

As a first step in this direction, Secretary Work has asked a committee to conduct a thorough study of the southern Appalachian Mountain range with a view of determining those areas which would meet our national park requirements. The responsibility placed upon the committee is great. Thorough knowledge of the region must be obtained. A mistaken selection would be disastrous to the park movement. Fortunately for the committee, the Government has a very intimate knowledge of this region, through the work of the Geological Survey and the Forest Service. For twenty years the Forest Service has been studying the Southern Appalachians from many standpoints and has amassed a great fund of information which should be very helpful to the committee in directing its attention to those areas which have promise of containing national park features.

Game Protection in Alaska

ALASKA, the great frontier of America's wild life, is badly in need of game protection. Since the publication in our December number of the article "The Moose Butchers of Kenai," describing the slaughter of Alaskan moose and the flagrant violation of the game laws in the Kenai country, numerous letters asking why the Government does not provide adequate protection for the game and fur-bearing animals of Alaska have come to us.

We are glad, therefore, to call public attention to and to urge public support of a game protective measure recently introduced in Congress. The bill is designed "to establish an Alaskan Game Commission, to protect game animals, land fur-bearing animals, and birds in Alaska." The measure would be known as the Alaskan Game Act and would provide the territory with a modern and efficient administration of its wild-life resources.

Existing game and fur laws in Alaska are obsolete and are failing to conserve the game and fur-bearing animals, which are among the most valuable natural resources of this rich territory. Alaska has yielded for each of the past two years almost two million dollars' worth of furs and almost a half-million dollars' worth of game meat. Capitalized on the basis of 6 per cent income, this represents an asset value of fifty million dollars. The present wasteful handling of our Alaskan game resources will reduce this asset to an insignificant item. Proper conservation, on the

other hand, will not only maintain present rates, but will materially increase them.

From time to time we are told that game in Alaska is increasing. This is true in a few localities; but taking the territory as a whole, both game and fur-bearers are on the decrease. For example, the overkilling of beaver during the last open season compelled the Secretary of Agriculture to declare a closed season on these animals. Overtrapping of marten has endangered the future of that valuable fur-bearer, and unrestrained killing of moose in the Kenai country has reduced these animals almost 80 per cent in the last ten years.

The proposed Alaskan Game Act is based on several years of careful investigation of the needs of the situation and has the endorsement of the U. S. Biological Survey and of leading conservation organizations throughout the country, including associations and organizations in the territory. The act would give to Alaskans a part in the administration of their game and fur resources, something for which they have long expressed a desire.

The importance of prompt and adequate protection of Alaskan wild life cannot be overstated. Vast areas of the territory are bound to remain in a primitive condition for many years, and here game and fur, if properly conserved, will form the principal, if not the only, productive asset. It is to be hoped that Congress will pass the measure without delay.

The Lookout on the Hill

[Continued from page 206]

The man advanced and the ranger recognized old Jerry. "Hello, Jerry; didn't know you. Come with me; you can't fight fire alone." Then, as the old man complied, he asked, "How did this fire start?"

"Railroad train. Wasn't nothin' else. An' I mean to get damages for every last stick of my timber that's burned."

Jerry, with vituperative garrulity, launched into an abusive tirade against the railroad company as they approached the crew. The ranger interrupted him with, "Well, here we are. Fly to it."

The men continued their steady advance and in another hour had reached the bottom of the fire, where they met the other crew. Al Potter's men had had better luck, and had not lost their line at all. The fire being now completely surrounded, they rested on the ground or sat on stumps until the all-night patrol would begin.

Jerry was more bitter than ever against the railroad for setting his woods afire, and called them all to witness the loss that he had suffered.

"I'll sue 'em for a thousand dollars' damages, durn 'em," he yelled. "Burnin' up a poor man's timber that-a-way!" He turned fiercely upon the ranger. "You'r an officer an' I want you should see I get justice. Fine protection a man gets, with the state wastin' money on fire towers an' sich an' lettin' a poor man's timber burn up. Durn 'em, I'll!"

"All right, Jerry," the ranger replied soothingly. "Don't get wrathful. We'll take that up later. Hello! who's here?"

Into the faint glow of the last burning brush pile stepped Annie.

"Where's dad?" she asked, and at his call of "Here, Ann," she passed over to him. Then to Jerry she said, "Well, what do you think of the tower now? If it hadn't been for that, the whole mountain would have burned over, and your home with it."

"Tower?" he cried. "Tower! It ain't done a bit of good. Here's the railroad like to burn me outa house an' home. Look at the loss I have. But I'll sue 'em. Yes, sir, for one thousand dollars' damages."

"You'r an old fraud," Annie retorted in exasperation; "that's what you are."

"Fraud, am I? Well, lemme tell you, I ain't no graftin' snip of a girl, nor yet a forest ranger livin' off poor people's taxes."

"All right, Jerry," the ranger again offered patiently. "We'll fix that up later. Now, tell us what you know about this fire starting."

"Well, it's this-a-way. Here I be comin' through the brush when all to once I see the train go by, an' pretty soon sparks begin to fall an' the fire starts. Then"—

"That's a lie!"

Old Jerry started back when confronted by Annie's accusing finger and angry eyes.

"That's a lie," she repeated. "You set the fire yourself. No, don't try to get out of it. I saw you do it with my own eyes."

"You seen me?" he ejaculated incredulously.

"Yes, I did. I walked down here after the train passed—it was such a nice evening—and the engine hadn't thrown any sparks at all. Then I saw you set the fire in the grass along the track and run into the woods."

"You seen me?"

"Yes, I tell you." Then with permissible triumph, "So you see people do get protection, after all."

"You seen me?" he asked again, uncomprehendingly. "Why, why, then I won't get no damages now"—

"You just bet you will," interposed the ranger, stepping forward, "only in a different way. Oh, yes, you'll get all that's coming to you."

The Battle of Ice and Forest

[Continued from page 198]

No longer do we hear the roar of its shattering cliff; its margin may be fifty miles away, its only sign the dwindling icebergs that drift past upon the tide. The air is warm and pleasant, the forest is full of birds and insects, and grizzlies prowl along the sedgy borders of the salmon streams.

In all this recital, which is an absolutely authentic history of the course of events on the shores of lower Glacier Bay during the last century and a half, we have made one important assumption: that the ice margin maintains an interrupted retreat. As to the future, we may only guess. Recession may continue, or the ice may again advance and destroy the accumulated results of the labors of a hundred years. We have evidence that at least once in the recent past this has actually happened. Buried beneath hundreds of feet of gravel lie the remains of an ancient forest of spruce and hemlock, identical with that of today. It grew during a time of shrunken ice-fields that came between two periods of extension. Some of its trees were four feet in diameter and attained an age of four hundred years. As the ice began its last advance,

streams flowing from its margin brought great quantities of sand and gravel and laid them upon the forest floor. Deeper and deeper grew the deposits, until the tallest trees were covered, many being broken off in the process. Then came the ice, three thousand feet deep and more, creeping onward mile after mile to its ultimate limit, slowly receding, baring the gravels as it went. And today waves and streams, cutting into these deposits, are bringing to light the relics of the forest that is gone.

If space permitted I would willingly describe the other beauties of this region—its nine tide-water and hundreds of other glaciers, its magnificent fiords, its circle of snowy peaks culminating in Mount Fairweather, which rises fifteen thousand feet from the ocean level. An effort is being made, with every prospect of success, to have the region set aside as a National Monument for "permanent scientific research and education and for the use and enjoyment of the people." Because of the features that I have mentioned, of glacier and mountain, of forest—present, past, and yet unborn—it is eminently fitting that this should be done.

Twilight of the Natural Dyes

How a Few Great Colors Derived from the Forest Still Maintain their Supremacy Despite the Onrush of the Coal Tar Dyes of Modern Chemistry

By LOUIS E. WISE

(Photographs by courtesy of the American Dyewood Company)

LOGWOOD—the product of the dye-producing trees of Central America and the West Indies—has added to the shiny sleekness of many a silk hat and to the rich and aristocratic sobriety of many a broadcloth coat. As a dyestuff, it is at least holding its own against the inroads of some of the black dyestuffs produced not by the forest, but by the legerdmain of the modern chemist.

Soon after the discovery of America, logwood, or Campeche wood, found its way into Europe.

On aging it gave rise to a coloring matter which the dyers of England received with some favor; but certain factors necessary for its proper utilization were then not clearly understood and materials dyed with it soon lost their color and their splendor. In the reign of Queen Elizabeth the use of the dye was actually prohibited by Parliamentary enactment, and from the end of the 16th century until well after the middle of the 17th great quantities

of the wood, which contained one of the most valuable and interesting dyestuffs known to our civilization, were indiscriminately burned. Later, however, it became apparent that man, not the forest, was at fault, and logwood, reinstated in the good graces of the dyer, for two centuries maintained its supremacy as the best dyestuff for producing "blacks" on silk and wool, cotton, leather, fur, and straw. Today, in spite of the inroads of the synthetic dyes made by the chemist, it still ranks with the foremost dyes used in coloring animal fabrics, and during the World War, when the Allies felt the pinch of the German synthetic dye monopoly and the use of the natural dyes was

revived, its export and sale were greatly stimulated and increased. Thus the imports of logwood into the United States jumped from 40 thousand tons in 1914 to 187 thousand tons in 1916. However, with the development of our own domestic dye industry, the exports fell again, in 1921, to 27 thousand tons.

The tree from which logwood is derived, the *Hæmatoxylin campechianum* (Linn.), is indigenous to Central America, the warmer parts of South America, and to the West Indies. Today not a little of the wood

comes from Jamaica, Cuba, Haiti, St. Domingo, and Honduras, since the forests of Campeche, in Southern Mexico, the vaunted ancestral homes of the finest logwood, are now all but exhausted. The dense, hard wood, with bark

removed, is shipped into the American market in the form of great blocks, some of them weighing as much as 400 pounds apiece. Before they can be of use to the dyer, these huge bil-

lets must be powdered or chipped, and very frequently it has been found expedient to extract from the wood, with hot water or with steam, the components which give rise to the valued coloring matter. The resulting product, after driving off the excess of water, is known as "logwood extract," and it is essential to note that this material contains not the dyestuff itself, but its progenitor, a substance which the chemist has nicknamed "hæmatoxylin," and which must be oxidized to the active dyestuff "hæmatein" before it can serve its final purpose.

Closely related to logwood, both chemically and botanically, are the soluble "redwoods," which are often grouped



THE LOGWOOD FOREST OF THE WEST INDIES IS A SILENT AND EFFICIENT CHEMICAL FACTORY, PRODUCER OF THE FOREBEAR OF ONE OF THE MOST VALUABLE BLACK DYESTUFFS KNOWN TO MAN



OUR OWN BLACK OAK (*QUERCUS VELUTINA*) IS A REAL CHEMICAL DYE-MAKER AND ITS BARK FURNISHES DYE-STUFFS USED IN COLORING WOOLEN GOODS YELLOW, GREEN, AND CHOCOLATE BROWN



IN THE DAYS OF GOOD QUEEN BESS VAST STORES OF LOGWOOD SUCH AS THESE WERE DESTROYED WHEN THE DYERS OF ENGLAND WERE UNABLE TO USE THEM TO THE SATISFACTION OF THEIR CRITICAL CUSTOMERS



EFFICIENCY METHODS ARE NOT ALWAYS IN VOGUE IN THE WEST INDIES. HERE WE HAVE SOME DUSKY LOGWOOD TOTERS READY TO CARRY THE DYEWOODS FROM THE INTERIOR TO THE COAST

together under the collective name of Brazilwood. As a matter of fact, *true* brazilwood is only one of a flourishing clan of at least several brothers known as *Cæsalpiniacæ*, and it is the *Cæsalpinia braziliensis* that is native to Brazil. It is said that with the dawn of the 16th century, when the Spaniards landed on the South American continent, the trees giving rise to a flaming red dyewood were in such evidence that the discoverers named a vast area of the country *Brasil* (from the Spanish "brazo," which meant "fiery red"). Apparently, Yañez Pinzon, companion of Christopher Columbus and explorer, who went through the motions of taking possession of the country in the name of Spain, brought home with him samples of the dyewood which characterized the land, and it is quite certain that the Portuguese, who accidentally rediscovered Brazil on their own initiative and who combatted the early attempts of the Spaniards to colonize the vast territory, soon discovered the value of those remarkable dyestuffs which emanated from the Brazilian forests.

A close relative of brazilwood, known as Pernambuco wood, the product of *Cæsalpinia crista*, a tree residing in both Jamaica and Brazil, is much richer in the dyeing principle than is its brother, *braziliensis*. In fact, in this respect it ranks as the wealthiest member of the *Cæsalpinia* clan. Other soluble redwoods of commercial interest are found not only in South and Central America and in the West Indies, but also in the warmer portions of Asia and in the Philippines. Sappanwood (product of the *Cæsalpinia sappan*) was probably used as a dyewood in Asia long before western Europe had dreamed of the discovery of the Americas.

As in the case of logwood, the barked redwoods come into the industry in the form of large billets, which are rasped, chipped, and either aged by fermentation and oxidation or extracted with water. Needless to say, the final dyestuff obtained from such extracts is red, and it is fixed to wool through the agency of suitable mordants. Formerly brazilwood was also used in the dyeing of cotton, both alone and in conjunction with other coloring matters; but in this respect, at least, its days are numbered, as cotton-colored redwoods have been weighed and found wanting.

A totally different class of red dyewoods are the so-called "insoluble" redwoods, which do not yield their coloring matters on extraction with water. They are confirmed alcoholics and require the use of the ethyl alcohol in the preparation of their red dyestuffs. Incidentally, these dyes can color woolen goods quite independently of mordants. In their use as dyes

for cotton, however, the mordant auxiliaries are necessary in the permanent fixation of the red colors. This class of insoluble redwoods includes sanderwood, product of the *Pterocarpus santalinus* of tropical Asia and the East Indies and "barwood" and "cambe" wood (camwood) furnished by the splendid tree, *Baphia nitida* (Lodd) of western Africa. Although these forest dyestuffs still find a modest place in the dyeing industry, they will soon be of historical rather than of commercial interest.

A much more important dyewood, product of a South American tree known as *Chlorophora tinctoria* (Gaudich), travels under the rather homely name of "old fustic," as well as under many aliases, such as Cuba wood, yellow wood, and *palo amarillo*. It flourishes in the same regions that harbor the *Casalpinia* group, and its interesting yellow dyestuff has on many an occasion demonstrated its usefulness, its versatility, and its persistency in the face of the rushing invasion of coal-tar dyes. It is still widely used in wool dyeing, although as dyestuff for silk and cotton its present-day utilization is much more limited. Fabrics treated with chromium mordants are permanently dyed by fustic, and the olive-yellow and old-gold colors obtained in this way are very fast to light. The same is true when copper and iron mordants act as middlemen between the dyestuff and the fiber. "Young fustic," a totally different dyewood, is the product of a sumach, *Rhus cotinus* (Linn.), a tough little tree growing mainly in southern Europe and in the West Indies, and its yellow dye has of late years proved of such questionable commercial value that it has all but disappeared from the markets of the world.

Very closely related to old fustic, however, is the coloring matter produced by a native-born 100 per cent North American. For centuries, the osage-orange tree had been growing in Oklahoma, Texas, and southern Arkansas, where it had demonstrated its usefulness in the matter of planting windbreaks and hedges. Its wood was hard and tough and extremely durable, and had found a place in the production of fence posts, tool-handles, and wagon felloes. However, in its physical utilization, osage orange showed some very decided disadvantages. It was a rather small and misshapen tree, and in consequence it yielded relatively large quantities of wood waste, besides its otherwise useful products. This fact, coupled with the knowledge that in centuries past the Indians of the Red Valley of Texas had extracted the wood and used its coloring matters to stain their blankets, led the Forest Service to investigate the dyeing possibilities of the osage orange. As a result, some nine years ago their chemists found that



HERE IS A PILE OF "OLD FUSTIC" ROOTS. OLD FUSTIC ALSO ENJOYS THE MORE DIGNIFIED NAME OF *CHLOROPHORA TINCTORIA* AND PROVED ITS WORTH WHEN IT FURNISHED THE DYESTUFFS FOR OUR DOUGHBOYS' UNIFORMS



A FEW OF THE BLOCKS OF THE WOOD WHICH GAVE BRAZIL ITS NAME. THIS PARTICULAR FOREST PRODUCT COMES FROM TEHUANTEPEC, MEXICO, AND FURNISHES THE SAME RED DYESTUFF WHICH MADE CENTRAL AND SOUTH AMERICA SO ATTRACTIVE TO THE EARLY PORTUGUESE AND SPANIARDS



A TIME-HONORED "CONVEYOR" SYSTEM USED IN HAULING THESE GREAT LOGWOOD BILLETS TO THE PORTS FROM WHICH THEY WILL BE SHIPPED TO THE UNITED STATES

the two most important dyeing principles of old fustic were also present in the extract obtained from osage orange, and that the use of the latter could very well match those of old fustic, both in the textile and in the leather industries.

A natural dyestuff, producing varying shades of yellow, orange, and green, and which still enjoys a reputation among the calico printers of Europe,

is generally known under the queer name of "Persian berries." It is found in the fruits of various wild and cultivated species of the buckthorn family, a genus so well distributed over the globe that we find its representatives in France, Italy, Spain, Bessarabia, the Levant, Persia, and in America. The true Persian berries, products of *Rhamnus amygdalinus*, *oleoides*, and *saxatilis*, are rather costly products

exported from Smyrna and Aleppo. Their dyestuff has little, if any, advantage over that of its cousin, old fustic, and it is decidedly more expensive. Nor does it outrank its American relative, a dyestuff extracted from the bark of one of our own black oaks, usually termed quercitron bark, which must be considered a much more serviceable yellow coloring matter. This quercitron, a rather late arrival among the natural dyes, is being produced and used in large quantities in the United States. The "chemist" making it is a large tree, *Quercus velutina*, from whose inner bark, the quercitron coloring matters are extracted by treatment with water, or by the use of various chemical reagents.

Another noteworthy and largely used natural dye is known as catechu or cutch, of which there are a number of species. The tanners and dyers distinguish between four important cutches: (1) Gambier catechus, obtained from the leaves and twigs of a climbing plant growing sometimes wild or sometimes under cultivation in Malacca and Singapore; (2) Bengal (or Acacia) catechu, derived from the red heartwood of a small tree indigenous to India and Burma; (3) Bombay or Areca catechu, isolated from the fruit of the betel-nut palm of tropical Asia; and, finally, (4) the Mangrove cutch, from the bark of the mangrove tree, which is the youngest cutch competitor.

The cutches are famous for their "browns." Cotton goods steeped in their solutions and then treated with copper and chromium salts are permanently colored—and these brown colors are fast, not only to light, but to the

effects of acids and alkalis as well and even to the demoralizing action of "bleaching powder," before which most dyestuffs sicken and turn pale.

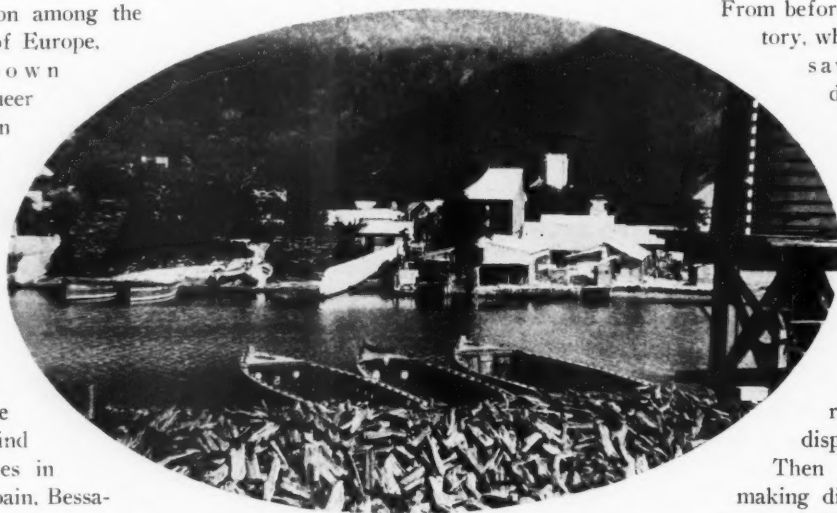
There are, perhaps, ten or twelve other individuals that might have been included in our list, but their uses have shrunk to the vanishing point, crowded out by the advent of rampant synthetic dyestuffs.

From before the dawn of history, when some observant savage accidentally discovered that the juices of a shrub or herb stained his naked body, until the middle of the 19th century, the natural dyestuffs stood alone, the sole, undisputed raw material at the disposal of the dyer.

Then came the epoch-making discovery of a boy of eighteen, William Henry Perkin, who found that aniline, a chemical product of coal tar, could be successfully converted into a valuable dyestuff—

mauve. The production of other coal-tar colors followed—slowly at first, then with ever-increasing rapidity—until the world was literally flooded with a great army of synthetic dyestuffs, some of which were the actual counterparts of dyes which heretofore had been produced only in the tissues of the living plant. Of these, *indigo*, the great vat dye, is an outstanding example. Used in the temples and palaces of Egypt and in the ancient civilizations of Asia, indigo, the permanent blue dyestuff, product of the leaves of a variety of plants known as the *Indigofera*, had come down to us through history. It had always been conceded to be a *natural* product. Vain concession! By 1890 the chemists had succeeded in making indigo from the components of coal tar. With the dawn of the 20th century they were successfully competing with the genus *indigofera* in commercially producing the dyestuff. By 1910 the bulk of indigo coming into the European markets had found its origin in coal!

This is just one illustration of the triumphs of the organic chemist in competing with Nature. Those ever-increasing victories hastened the twilight of the natural dyes. One by one they left the markets of the world. A very few of them remain to face the competition of the younger coal-tar dyestuffs; and these few, no doubt, will remain of vast service for many years to come. In times of stress and world emergency they proved their worth and their importance. They were the "pinch-hitters" of the epoch, making a mighty showing in American industry, and even today they remain important factors in the commerce of the world.



SOME DAY THESE THOUSANDS OF POUNDS OF FOREST DYEWOODS, STORED AT CAPE HAITI, WILL ADD TO THE SOBRIETY OF MANY A BROADCLOTH COAT AND TO THE LUSTER OF MANY A TALL SILK HAT

A Phoenix of the Lumber Industry

By E. G. CHENEY

AT Knife Falls, fifteen miles northeast of Duluth, Minnesota, where the Cloquet River breaks through the massive granite rim of the Superior basin, is one of the most remarkable wood-using centers of America. On an October morning in 1918 the name of this industrial community was emblazoned on the front pages of newspapers of the country, for during the previous night Cloquet—a town of some 8,000 wood-working, and wood-thinking people—had, so the papers said, been wiped out by forest fires.

But, as time has proved, Cloquet had an historical background which had woven roots of permanency too deep for fire to destroy. Not that Renwick, Shaw, and Crosssett, of Davenport, had any idea of establishing a town at Knife Falls when they built a mill there in 1880. Nor had the C. N. Nelson Company, of Stillwater, such an idea when it built there in 1881. Not even when the Cloquet Lumber Company and the Northern Lumber Company bought these mills out, and each added a second mill, was there any idea of permanency. Nor yet when the Johnson Wentworth mill was built in 1894.

Those were the days of cut and move in the lumber industry. Boom towns grew up over night around new mills, prospered riotously for a few brief years, only to dry up and dwindle away to a few deserted shacks when the mills cut out. Hundreds of such forlorn monuments

to the glories of the past, surrounded by thousands of acres of blackened stump lands and stripped of every source of revenue, were already dotting the pineries throughout the north. The idea of a permanent wood-using industry in the Great Lakes country had not yet been born.

Scanlon, only two miles away, had followed the usual formula. The mill was already dismantled. The planer kept up a semblance of life for a couple of years more, and then one by one the houses which were worth moving were loaded onto logging sleds and hauled away to neighboring towns till only a skeleton of its former self remained. A record was made when a house was moved four miles in two hours, without letting the fire go out in the kitchen stove. There was as yet no intimation that Cloquet would not suffer the same fate in a few years when her larger stumpage supply was exhausted.

And yet the men at the helm in Cloquet were men of unusual vision. If they could not quite see a permanent wood-using center they could at least see the possibilities of a permanent town. With ninety feet of drop in the river within the city limits and a fair quality of soil surrounding it there were distinct possibilities. The companies encouraged the farmers in the cutover lands in every possible way.

Perhaps these men could not see all that the future had in store, but they were not slow to sense the possibilities



CLOQUET ON AN OCTOBER MORNING IN 1918—THE FIRE-GUTTED RUINS FROM WHICH THE PHOENIX OF THE LUMBER INDUSTRY ROSE TRIUMPHANT

of the present. The lumbermen had been operating like country butchers, culling the best of the flock and then using only the porterhouse. The unfit trees in the forest were left to the inevitable forest fires which followed the logging; the poor cuts went to the refuse heap; the porterhouse had to pay for it all. Why not have a packing plant for wood, use it all and lift the burden from the porterhouse?

They began to encourage the establishment of plants for the utilization of other raw materials than saw logs. A paper company was built in 1898 for the manufacture of newsprint from ground spruce, and later a unit was added for the manufacture of sulphite. Fifty thousand cords of spruce, up to that time unmerchantable in that section of the country, were used annually at a profit.

Lumber buyers were finicky and hard to please; low grades were hard to sell. Some other way had to be found to make use of the poor grades of lumber, so a box factory was started in 1914 and an outlet made for twenty million feet a year of low-grade lumber, one-third of which was less than four feet in length. Another leak had been stopped.

picks from white birch. Sixty-two and a half million toothpicks, two hundred and fifty thousand tongue depressors, and five hundred thousand applicators daily were thereafter made from the white sapwood of the birch. But the heartwood was still wasted, so a unit was added to manufacture three hundred thousand clothespins from the dark heartwood. The approach toward complete utilization was being made in giant strides, but the idea of permanency was not yet clearly fixed. Cloquet's wood-using industries were well established, but the supply of raw wood was every year shrinking further and further away.

Such was Cloquet on the morning of October 12, 1918, when the smoke of the gathering forest fires drifted into the city streets—a flourishing city of eight thousand souls, with the heart of its prosperity wrapped up in this unique group of wood-using industries, and the hope that these industries would hold out in some way till another source of revenue could be developed.

People snuffed the air curiously and wondered just where the fires were, little dreaming that a town of that size, surrounded as it was by cleared land, could be in dan-



REBORN CLOQUET—EXACTLY THE SAME SCENE FOUR YEARS AFTER THE TOWN WAS LEVELED BY THE TERRIFIC FIRES OF 1918

The spruce and the low-grade pine lumber had been provided for, but there was still a tremendous waste of white birch and other so-called inferior hard woods. Mixed with the pine timber, in surprisingly large quantities and growing to sawlog size, the birch was nevertheless classed only as firewood and most of it was left in the woods to burn with the slash. In the northeastern states, white birch was being utilized. Why not in Cloquet? The question was answered in 1917, when a company was persuaded to start a factory in Cloquet to manufacture tooth-

ger. Hour by hour the smoke thickened and rumors of the fierceness of the fires raging farther up the valley spread. The darkness of night descended on the town in the afternoon, but the mills droned on and the mighty exhaust of the shot-gun feeds snorted their scorn of approaching danger.

It was a time when heroes are made. Farsightedness and keen judgment brought two into prominence now. The station agent scented possible trouble and held the south-bound train. The conductor raged and the St. Paul office ordered that the train be released.

"Not while I'm station agent," was the answer, and he held the train. More than that, he scraped together two more and held them in readiness.

The forest ranger, too, rightly gauged the oncoming danger. In spite of jeers and derision, in spite of the fire-break of cultivated land around the town, and with the

future. Did the available supply of old growth timber and other resources justify rebuilding the town? It was then that the new Cloquet was born. But the germ of its new birth had come some time before from a little tract of timber four miles to the southeast. It had come unheralded and unknown to anyone.



THE HOT POND AT THE NEW MILL—EVIDENCE OF CLOQUET'S FAITH IN THE FUTURE OF ITS FORESTS, AND OF THE VISION OF THE MEN WHO HAVE REBUILT THE TOWN INTO ONE OF THE MOST REMARKABLE WOOD-USING CENTERS OF AMERICA TODAY

song of busy sawmills ringing in his ears, he all but drove the reluctant and doubting people from their homes.

It was largely through the efforts and judgment of these two men that the eight thousand inhabitants of Cloquet escaped without the loss of a single life.

How those trains pulled out grudgingly inch by inch just ahead of the flames that no one might be left behind in the fiery furnace; how the town was wiped out almost as completely as though it had never been, and how the people of the country responded so generously to the relief of the homeless, is a story already told. But how the lumber industry rose like a phoenix from the smoking ashes is a story yet untold.

The chance for which many a lumber town had prayed—a devastating fire to rescue them from a waning timber supply—had come to Cloquet. According to all precedent the town had reached its climax, and its history had been brought to a fitting and enviable close. No one expected anything different.

Then an unusual thing happened. Before the smoke had cleared away the people began to come back. For what had they come? There was a brief period of doubt and hesitation. Was it merely an idle curiosity to see the ruins? Or had they come to rebuild their homes?

There were hurried meetings of boards of directors, frenzied efforts to take stock of the wreck and see into the

Eight years before, these same companies had given some twenty odd hundred acres of land to the state for a forest experiment station. They did not have much idea what a forest experiment station was, but they were game and took a chance. Gradually their interest in it grew and later their interest changed to pride, and from pride to faith. And it was from that little tract that they visioned a great truth without which there would today be no permanent lumber industry in Cloquet.

This great truth was that timber grows and that second growth, no matter how small, has a value. It was this truth, coupled with the knowledge that timber no longer had to be three feet in diameter to be usable, that made the rebirth of Cloquet possible. Was not Cloquet surrounded by millions of acres of land, which, having grown forests once, could grow them again? The decision to rebuild the town was made.

It was still somewhat of a gamble, but the decision once made they pinned their faith unflinchingly to those two truths and did not hesitate. The remnants of the factories which did not burn made desperate efforts to establish temporary quarters for the fast returning people. Tents and rough board shacks sprung up everywhere. Within forty-eight hours the paper mill was running again. The two remaining sawmills, the box factory, and the toothpick factory quickly followed. A new sawmill was planned

and speedily built. Within a year all the pre-fire industries were operating again, and work had progressed far enough to make it certain that Cloquet would be rebuilt on a scale better than before.

The faith of the people had strengthened the faith of these Weyerhaeuser companies, and they proceeded in earnest toward their goal of permanent wood-supported industries. A new two-million-dollar paper mill for the manufacture of book paper from all kinds of wood soon towered up above the old mill. A tract of land extending far out onto the point north of Lake Superior was added to their former holdings. Preparations were made for a hundred-mile extension of the logging road.

More and more of these men began to think of new ways by which the forests might be able to add permanency to Cloquet. A process was developed by Howard G. Weiss, of Madison, Wisconsin, for the manufacture of an insulation paper for use in buildings, and a factory was soon under construction for the manufacture of this new product, which was given the name of balsam wool. This plant has now been in operation for almost a year and a half, with an output of 15,000,000 square feet of balsam wool a year. The product has been such a success that an additional plant is just being completed which will make it possible for the company to produce 30,000,000 square feet annually. These plants utilize waste from the paper mill, running the pulp through shredding machines, treating it chemically to resist fire and then forming it into a fluffy mass of fibre. The result is a fibre mat, approximately five-eighths of an inch thick, lined on either side with a forty-pound kraft paper, a thin film of asphalt sticking the paper to the mat.

Recently another factory has been completed which will take the waste from the sawmill and convert it into a high-grade wall board by a process also developed by Mr. Weiss. By this process a blower system takes the sawmill waste, consisting of slabs, edgings, bark, decayed wood, and other waste material, which in the past has been consumed in the burners, and blows it a distance of 900 feet to the wall board factory. Here it is ground up and pressed out into the form of a board four feet wide and

sixteen feet long. The company plans to manufacture this board in thicknesses from three-sixteenths of an inch to three-quarters of an inch. Already the product which has been referred to as synthetic lumber by the press has attracted much interest. It has been reported that the company expected to utilize branches, twigs, leaves, and other debris left over from the logging operations, but this is incorrect, as the present plans contemplate using the ordinary hog feed or waste produced in connection with the sawmills.

These factories no longer look exclusively to the century-old white pine timber for their raw material as they one time did. They are built to handle smaller trees. The popple, birch, jack pine, and other so-called "inferior species," looked upon in years past as a worthless encumbrance on the slowly developing farms, will come into their own at last. There is a tremendous supply of this class of timber on these farms, which, if it is protected from fire, will feed these factories almost as well as the big logs fed the old-time mills and it will be protected from fire and other damage when the farmer sees a demand for it. These species will fill the gap between the last big timber of the fast disappearing primeval forest and the maturity of slowly developing second growth.

Lumbermen who could not see the possibility of raising a Christmas tree at a profit a few years ago are seeing their way clear to raise pulpwood now. Sawlogs? No. But pulpwood, yes. And before the pulpwood is ready to cut they will be confidently growing sawlogs—not the great sawlogs of the past, but the twelve-inch sawlogs of the future.

Fires which at one time burned unmolested on company cut-over lands no longer have their former freedom. Those companies now see with different eyes. Thousands of dollars are spent to keep the fire out of their lands and young growing trees will be carefully nursed along to become the sawlogs of the future.

Every year sees some new development. The idea of experimentation is in the air and progress is assured. Surely, as long as timber grows, Cloquet will continue to be a wood-using center.

John Ruskin on Tree Planting

THE great Ruskin touched on many subjects in his voluminous writings and devoted many pages to the beauty and architecture of trees. In his "Seven Lamps of Architecture," chapter 6, part 9, he wrote:

"The idea of self-denial for the sake of posterity, of practicing present economy for the sake of debtors yet unborn, of planting forests that our descendants may live under their shade, or of raising cities for future nations to inhabit, never, I suppose, efficiently takes place among publicly recognized motives of exertion. Yet these are not the less our duties, nor is our part fitly sustained upon the earth, unless the range of our intended and deliberate usefulness include not only the companions, but the successors, of our pilgrimage. God has lent us the earth for our life; it is a great entail. It belongs as much to those who are to come after us, and whose names are already

written in the book of creation, as to us; and we have no right, by anything that we do or neglect, to involve them in unnecessary penalties, or deprive them of benefits which it was in our power to bequeath. And this the more, because it is one of the appointed conditions of the labor of men that, in proportion to the time between the seed-sowing and the harvest, is the fullness of the fruit; and that generally, therefore, the farther off we place our aim, and the less we desire to be ourselves the witnesses of what we have labored for, the more wide and rich will be the measure of our success. Men cannot benefit those that are with them as they can benefit those who come after them; and of all the pulpits from which human voice is ever set forth, there is none from which it reaches so far as from the grave."

Finishing the Home with Trees

[Continued from page 214]

watered, and loose soil pulled in after the water has soaked in. The burlap need not be removed, as it rots quickly and does no harm.

PRUNING THE TREES

After deciduous trees are set or before they are set, if that suits better, they should be pruned of one-third to one-half of their tops. A sharp knife should be used and clean cuts made. This pruning compensates to a certain extent for the roots lost in digging the trees. The reduced root system is able to supply the reduced tops with the moisture that the tops demand. The tops of pines, spruces, and similar evergreens should not be pruned.

CARE SUBSEQUENT TO PLANTING

Following planting, the trees should be cultivated regularly up to the first or middle of July and watered frequently during dry weather. About July 1, in the prairie section, it is best to mulch heavily with straw or similar material over the roots, so as to keep the ground cool and moist during the hot months of July and August; this is particularly essential for evergreens.

When trees are planted in the spring, the effect of watering during the first season is not only to make them grow, but it is an indirect method of preventing the attacks of some boring insects. Such insects often attack unhealthy trees, but leave vigorous growing specimens alone. In late fall, before the ground freezes, it should be well soaked with water and then mulched with straw or manure for a distance of three or four feet around the tree. With this treatment, the trees should go through the first winter in good condition. Occasionally, mice will work under such straw during the winter and eat the bark of the tree. This can be avoided by wrapping fine woven wire, window screening, or something similar around the base of the tree and leaving it there over winter.

Some of the more common trees adapted to shade and ornamental planting are printed on page 244.

The acreage of forest land swept each year by fire is about twice the area annually cut over by logging operations. Many foresters estimate that more timber has fallen before the flames than before the ax.

Every year forest fires in the United States destroy or damage timber of sufficient amount to build five-room houses for the entire population of a city the size of Denver, Portland, Seattle, San Francisco, Atlanta, Louisville, Kansas City, New Orleans, or Washington, D. C.

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Trees Suitable for Shade and Ornamental Planting

THE more common trees adapted to shade and ornamental planting are indicated below. They have been grouped under wide territorial ranges; hence it must not be assumed that all species can be grown successfully in all parts of the region for which they are recommended. Certain species are adapted to only a part of the region, to certain kinds of situations, etc. The safest guide is to choose those species of trees that are already growing well in the locality. The lists here given are not intended to exhaust the possibilities of species, but they do provide wide selection of important and promising trees.

MAINE, NEW HAMPSHIRE, VERMONT

White pine, red pine, Scotch pine, hemlock, European larch, Japanese larch, arborvitae, white spruce, Norway spruce, basswood, sugar maple, beech, red maple, white ash, white elm, and paper birch.

NEW YORK, PENNSYLVANIA, NEW JERSEY, MASSACHUSETTS, CONNECTICUT, RHODE ISLAND

White pine, red pine, Austrian pine, Scotch pine, European larch, Japanese larch, Douglas fir, hemlock, arborvitae, Norway spruce, white spruce, blue spruce, retinospora, white fir, red oak, pin oak, white oak, black walnut, basswood, mountain ash, sugar maple, red maple, Norway maple, black gum, white ash, white elm, English elm, ginkgo, beech, paper birch, and Oriental plane.

MARYLAND, DELAWARE, VIRGINIA, NORTH CAROLINA

White pine, short-leaf pine, loblolly pine, Scotch pine, Austrian pine, hemlock, Norway spruce, white spruce, blue spruce, arborvitae, retinospora, white fir, junipers, European larch, Douglas fir, cypress, white oak, red oak, southern red oak, pin oak, willow oak, swamp white oak, sycamore, holly, yellow poplar, red gum, black gum, ginkgo, sugar maple, red maple, Norway maple, horse chestnut, white elm, black walnut, basswood, hackberry, dogwood, crepe myrtle, beech, and pecan.

SOUTH CAROLINA, GEORGIA, NORTHERN FLORIDA, ALABAMA, MISSISSIPPI, LOUISIANA, EASTERN TEXAS

White pine, loblolly pine, short-leaf pine, slash pine, Norway spruce, junipers, arborvitae, cypress, deodar cedar, magnolia, crepe myrtle, red gum, yellow poplar, white oak, southern red oak, pin oak, swamp white oak, cow oak, black walnut, holly, green ash, laurel oak, willow oak, live oak, white elm, pecan, sycamore, beech, hackberry, sugar maple, and tulip tree.

SOUTHERN FLORIDA

Slash pine, loblolly pine, cypress, arborvitae, magnolia, willow oak, live oak, laurel oak, southern red oak, white elm, hackberry, camphor tree, eucalypts, and casuarina.

EASTERN OKLAHOMA, ARKANSAS, SOUTHERN MISSOURI, TENNESSEE, KENTUCKY

White pine, short-leaf pine, Scotch pine, Norway spruce, blue spruce, European larch, junipers, arborvitae, cypress, white ash, green ash, red gum, holly, yellow poplar, black cherry, black walnut, red oak, southern red oak, Texas oak, white oak, swamp white oak, cow oak, willow oak, pin oak, basswood, hard maple, red maple, beech, and magnolia.

WEST VIRGINIA, OHIO, INDIANA, AND THE SOUTHERN PENINSULA OF MICHIGAN

White pine, red pine, Norway spruce, white spruce, blue spruce, Douglas fir, hemlock, white fir, arborvitae, junipers, retinospora,

yellow poplar, black cherry, cucumber, horse chestnut, black walnut, white oak, red oak, swamp white oak, chinquapin oak, white ash, green ash, blue ash, mountain ash, concolor fir, sassafras, hornbeam, tulip tree, sycamore, black gum, willow, alder, and tamarack.

EASTERN PORTIONS OF MONTANA, WYOMING, AND COLORADO AND WESTERN PORTIONS OF DAKOTAS, NEBRASKA, AND KANSAS

Western yellow pine, jack pine, Black Hills spruce, white elm, Chinese elm, hackberry, honey locust, cottonwood, bur oak, green ash, Russian Olive, catalpa, and poplar.

WESTERN OKLAHOMA, WESTERN TEXAS, AND EASTERN NEW MEXICO

Western yellow pine, jack pine, Scotch pine, red cedar, Arizona cypress, Chinese arborvitae, green ash, white elm, Russian mulberry, Chinese elm, hackberry, honey locust, cottonwood, Russian olive, bur oak, sycamore, loquat, mesquite, silver maple, pomegranate, yucca, palmetto, and camphor.

WESTERN COLORADO, WESTERN WYOMING, SOUTHERN IDAHO, UTAH, AND NEVADA

Western yellow pine, Douglas fir, blue spruce, Rocky Mountain juniper, white fir, Engelmann spruce, Black Hills spruce, green ash, hackberry, honey locust, black locust, Russian olive, white elm, cottonwood, red cedar, Russian mulberry, black walnut, soft maple, and balm of Gilead.

WESTERN MONTANA, NORTHERN IDAHO, WASHINGTON AND OREGON

Douglas fir, western white pine, Norway spruce, western red cedar, western yellow pine, noble fir, silver fir, green ash, hackberry, honey locust, black locust, Russian olive, white elm, cottonwood, sugar maple, Norway maple, Oregon maple, sycamore, red oak, pin oak, ginkgo, horse chestnut, English walnut, silver poplar ash, hackberry, linden, birch, sugar maple, paper birch, basswood, white elm, red elm, and beech.

WISCONSIN AND MINNESOTA

White pine, red pine, Scotch pine, Austrian pine, white spruce, Norway spruce, blue spruce, arborvitae, European larch, white fir, balsam fir, red cedar, paper birch, white ash, green ash, white oak, red oak, burr oak, black walnut, buckeye, butternut, basswood, sugar maple, river birch, and white elm.

ILLINOIS, IOWA, AND NORTHERN MISSOURI

White pine, Scotch pine, Austrian pine, Norway spruce, blue spruce, Black Hills spruce, European larch, Douglas fir, retinospora, junipers, white fir, white oak, red oak, burr oak, pin oak, sugar maple, Norway maple, buckeye, European white birch, hardy catalpa, hackberry, white ash, green ash, black walnut, butternut, sycamore, basswood, red elm, and white elm.

EASTERN PORTION OF DAKOTAS, NEBRASKA AND KANSAS

White fir, red cedar, Black Hills spruce, Douglas fir, blue spruce, western yellow pine, jack pine, Scotch pine, silver maple, Norway maple, sugar maple, buckeye, European white birch, hackberry, green ash, honey locust, basswood, black walnut, sycamore, Carolina poplar, burr oak, pin oak, and red oak.

CALIFORNIA

Western yellow pine, prickly cone pine, Monterey pine, Douglas fir, white fir, Sitka spruce, Monterey cypress, sycamore, white elm, Norway maple, green ash, black locust, honey locust, red oak, pin oak, hackberry, California walnut, acacias, and horse chestnut.



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AROUND THE STATES

NEW YORKERS ORDER TREES AT RATE OF 100,000 A DAY

The year 1924 promises to break all records of tree-planting by the people of New York. Orders for trees for the reforestation of idle land this spring already on file in the offices of the Conservation Commission show that more land will be reforested in New York State this year than in any preceding year, and that the growth of the movement will be limited only by the ability of the state to supply planting stock. With the enlargement and consolidation of its nurseries and the purchase of more seed, the commission has available 1,000,000 more young trees than it had last year, when all previous records were broken.

On January 15 the Conservation Commission had orders for 2,971,550 trees for the spring planting. On February 15 the orders received called for a total of 6,795,000, or an average weekly sale of 850,000 trees. At the same rate of progress, by March 15, the total tree orders will absorb practically the entire available supply of trees for the spring planting season, leaving no trees to be planted in the forest preserve.

Some idea of the rapid growth of the reforestation movement may be gained from the following record of tree sales on February 19 for the three years 1922, 1923, and 1924: 1922, trees sold, 1,675,350; 1923, 3,237,600; 1924, 6,796,050.

Commenting upon the unprecedented demand for trees this year, Conservation Commissioner Alexander Macdonald said: "The steady and rapid increase in the demand for trees for reforesting waste land indicates that farmers and land-owners generally are waking up to the fact that idle land that is today a liability can be made a valuable asset by reforesting it."

NEW HAMPSHIRE'S SEVEN-YEAR WAR

With the beginning of 1924 the Forestry Department enters upon its seventh year in the control of the white-pine blister rust, an extremely serious bark disease which found

its way into this country from Europe several years ago. Since 1918 the department has co-operated financially with 142 towns and cities and 418 individual pine owners in the removal of currant and gooseberry bushes, which are the plants which spread the rust from pine to pine. As a result of this co-operation, more than 1,000,000 acres of land have been examined and 12,240,000 currant and gooseberry bushes located and destroyed. The cost of this work has been very low in comparison with the value of the pine protected, being only about 20 cents per acre.

Blister rust has proved itself in a very short time to be a real and serious menace to the white pines of this state. Infections ranging from small groups of pines to hundreds of acres have been found in 204 towns. Already, in many sections, dead and dying pines 20 to 35 years of age have been located; in others valuable young pine growths show infections as high as 100 per cent of the trees on an acre.



TWO BABY MOOSE RESCUED BY
RANGERS DURING THE MINNESOTA
FIRE SEASON

FOREST FIRES IN EAST TEXAS

The situation in the east Texas pine region with reference to fire protection continues to improve year by year, as is shown by the records for 1923. The patrolled area has been increased by about 800,000 acres and now amounts to 7,682,000 acres. As com-

pared with 5¼ per cent of the patrolled area burned over in 1922, the area burned in 1923 amounted to only 2½ per cent. This encouraging situation is largely due to the educational work carried on during the past several years by the State Forestry Department. Convincing evidence of the efficacy of such educational work is found in the fact that approximately 1,500 citizens turned out without pay to assist the patrolmen in fighting forest fires.

COMMITTEE TO STUDY NATIONAL PARK POSSIBILITIES IN THE SOUTH

During the coming summer a committee, representative of national park interests, will make a study of the southern Appalachian regions with a view to determining whether or not these mountains contain areas which should be set aside as national parks. The committee recently appointed by the Secretary of Interior, Hubert Work, is composed of Congressman Henry W. Temple, of Pennsylvania; Major W. A. Welch, General Manager of the Palisades Interstate Park Commission of New York; Colonel Glenn Smith, of the Geological Survey; Mr. Harlan P. Kelsey, a former president of the Appalachian Mountain Club of Boston, and Mr. William C. Gregg, of the National Arts Club of New York City. The last two named members of the committee were selected at Secretary Work's request by the Council on National Parks, Forests and Wild Life. Mr. Kelsey is a well-known landscape architect of Massachusetts, and Mr. Gregg was one of the prime movers in organizing in 1920 the Council on National Parks.

Secretary Work's purpose in creating this committee is to secure an absolutely impartial report on a site in the southern Appalachians which will most worthily represent the region in the national park system, and he has stressed that the creation of new national parks must not lower the standard, dignity and prestige of our present park system by the inclusion of areas which do not conform to these standards.

RECORD PRICE FOR IDAHO WHITE PINE

The importance and popularity of Idaho white pine is indicated in a recent sale on the Kaniksu National Forest by the U. S. Forest Service. The sale area comprises 170 acres and is typical white-pine land.

The bid price was \$12.50 per thousand feet for white pine, which establishes a new high mark for white-pine stumpage. In addition, the purchaser deposits the sum of \$1.80 per thousand feet into the Co-operative Work fund for piling and burning the brush after logging and clearing the ground of defective hemlock and white fir, in order to give sufficient light to assure a good percentage of white pine the next crop. The estimate is for 3,755 M feet of white pine, 1,775 M feet of other species, 4,350 pieces of cedar 30 feet and over, together with posts and other miscellaneous material. The total stumpage will amount to approximately \$53,000, or about \$315 per acre. The Government, of course, retains the land.

LEADER OF FORESTRY IN THE SOUTH RESIGNS

Colonel Joseph Hyde Pratt resigned on March 1 as Director of the State Geological and Economic Survey of North Carolina, a position he has held since 1906. In submitting his resignation to the Governor, Colonel Pratt said:

"It is with regret that I feel compelled to take this step, but inasmuch as the General Assembly of 1923 passed a bill which automatically retires me from the position of State Geologist at the expiration of the present Governor's term of office, in January, 1925, it is necessary for me to look ahead and arrange for other means of livelihood."

In accepting the resignation of Colonel Pratt, Governor Morrison wrote:

"It is with deep regret that I accept your resignation as State Geologist and Director of the Geological and Economic Survey of our state.

"I am sure that few men in our generation have rendered this state greater service than you have during the nineteen years you have filled the position from which you have just resigned."

Colonel Pratt is now actively engaged in his new work as President of Western North Carolina, Inc., an inter-county association whose purpose, as its name indicates, is the advertisement and general development of the resources and material and social possibilities of the rapidly prospering mountain section of the state. Colonel Pratt has for years been a leader in forestry in the South.

FISHER BODY COMPANY BUYS BIG FOREST

In line with its announced policy of securing an uninterrupted flow of raw materials, the Fisher Body Corporation, a subsidiary of the General Motors Corporation, has re-

cently taken steps to protect itself against a timber shortage. During the winter it has acquired 100,000 acres of standing timber in Tennessee, Arkansas, Louisiana, and Mississippi, and has formed a subsidiary company, known as the Fisher-Hurd Lumber Company, with general offices at Memphis. This action is in line with that taken by Henry Ford several years ago, when he acquired large timber holdings in northern Michigan and constructed sawmills to supply his automobile factories with wooden parts. It is announced that the Fisher Body Corporation, in converting its newly acquired timber, will likewise depart from the usual practice of most sawmills and will adapt the product of the log as directly as possible to the size and quality best suited for automotive body building.

The newly acquired properties of the company include logging and sawmill facilities, and it is estimated that the timber acquired will yield some 750,000,000 feet of hardwood lumber.

NEW YORK'S NEW SCHOOL FOREST

The town of Berlin, New York, is starting this year a town forest for the support of its school. Taking advantage of the amendment to the public lands law enacted last year, which permits the transfer of unappropriated state lands for park, recreation, playground, and reforestation purposes, the town has arranged for the acquisition of 234 acres of such land and will begin this spring the planting of a town school forest. Trees will be procured from the Conservation Commission, and it is planned to plant as many each year as the amount of labor available will permit. Residents of the town and the school children will participate in the planting and the Trojan Rod and Gun Club, which is taking an active interest in the reforestation of idle land, will send planting gangs of its own members and of its boys' auxiliary on Saturday afternoons and Sundays to assist in getting the trees in the ground. At forty years of age, it is estimated that this forest should yield 1,000 board feet of lumber per acre per year, which would give the town a perpetual annual income of \$3,500 for the reduction or the entire elimination of the cost of maintaining the town school, in addition to providing two fine recreation centers and improving the covers for game in the locality.

THE WHY OF FOREST FIRES IN NORTH CAROLINA

Reports to the Forestry Division of the North Carolina Geological and Economic Survey afford interesting answers to why spring is the more dangerous and destructive fire season.

These figures include returns from twenty-four North Carolina counties co-operating with the Survey in the work of fire suppression and from wardens maintained by the

Survey in ten other counties. The areas include the larger part of the mountain region and the southern part of the coastal plain region of the state.

For 1923 it appears that 15 per cent of all spring fires were caused by brush burning, while but 5 per cent of the fall fires are attributed to that cause. Further, 26 per cent of the spring fires were from unknown causes, compared to 17 per cent of the fall fires so reported. Since many of the reports marked "unknown" also carry the notation "probably caught from brush burning," it is safe to assume that the number of spring fires from this cause was materially larger than that definitely appearing from the reports. Likewise, fires of incendiary origin were 11 per cent of the spring number as compared with 2 per cent of the fall.

Most of these incendiary fires are attributed to burning the range for better grazing. Granting that half the fires from unknown causes are due to agricultural burning, it is seen that approximately 40 per cent of all the spring fires in North Carolina were caused by this practice, against 17 per cent of fall fires from a like cause.

DO YOU KNOW A LARGER WHITE BIRCH THAN THIS?

The above question is asked in a letter from Mr. J. T. Bogardus, who tells of the discovery of the fine old tree shown here on Hog Back Mountain, East Northfield, Massachusetts. This big beauty measured 18 feet in circumference at its base and 18 feet 8 inches at three feet above the ground.



As can be seen, it starts from the ground a solid tree and then branches out a few feet above. Mr. Bogardus sent with the picture a piece of the bark of the tree, and is interested to know whether a larger tree of this kind lives, and, if so, where.

LUMBER FACTS

Eight-hundred-thousand men labor daily in forest and mill to provide America with lumber. Behind them are thirty thousand sawmills and ten billions of invested capital.

On the average, lumber is hauled 600 miles from mill to consumer—so the consumer's lumber bill may include \$10 per thousand for freight. It used to be about \$2 for a 150 mile average haul.

The sawmills necessarily produce large quantities of lumber shorter than eight feet. Buy the cheaper "short lengths" for short uses and help reduce costs and conserve the forests 10 per cent.

NATIONAL LUMBER MANUFACTURERS ASSOCIATION

WASHINGTON, D. C.

CHICAGO

BOY SCOUTS AID REFORESTATION IN NEW YORK

The most important conservation work that the Boy Scouts are doing in New York is the part they are taking in the reforestation of idle and denuded lands, writes H. F. Prescott, Secretary of the State Conservation Commission.

"Last year troops in various parts of the state, working under the direction of competent foresters, planted many thousand trees on city watersheds, and this, I believe, opens up a broad field of activity in which the scouts can do very valuable work. In the city of Troy, in conjunction with high-

school boys and members of the junior auxiliary of the Trojan Rod and Gun Club, Boy Scouts set out 50,000 trees on the watershed of the Tomhannock Reservoir, bringing the total number of trees in the city's municipal forest up to 500,000. It is impossible to overestimate the importance of work of this kind in connection with the conservation of our natural resources. It brings home to the boys, better than anything else that I know of, the possibilities of planted forests by putting them in actual practical touch with the work that the state is doing to reclaim approximately 4,000,000 acres of denuded forest land, as the future timber supply, pro-

tection for our watersheds, and as covers for the wild life of the state. In a number of instances scouts themselves have obtained small parcels of land on which they are planting trees."

"WASHINGTON" AND "OREGON" NATIONAL FORESTS RE- CHRISTENED

Recognizing the almost universal appeal of the Mount Hood region to travelers, mountain-climbers, and tourists, the Forest Service has changed the name of the Oregon National Forest to the Mount Hood National Forest, effective at once. The region around Mount Hood has long been a playground for Portland people and is destined to become the pleasure ground for thousands of people, not only from the entire Northwest, but all over the United States.

The name of the Washington National Forest was changed to the Mount Baker National Forest on January 21, the same date the name of the Oregon Forest was changed to Mount Hood National Forest.

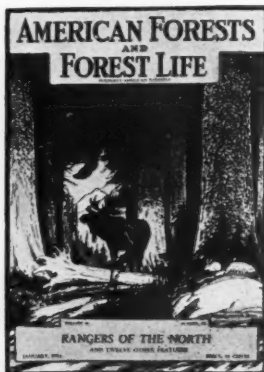
The Forest Service recommended this change in name in recognition of the increasing attraction and importance from a tourist standpoint of the Mount Baker region.

The completion of the Mount Baker Highway into Austin Pass will make accessible to the outside world the Mount Baker and Mount Shuksan country, a region of unsurpassed variety and charm, and will undoubtedly draw thousands of visitors annually to this now little-known region.

**Copies of the 1924 Index of
American Forestry will be sent
to members upon request**

Membership in The American Forestry Association is open to any person interested in the perpetuation of our forests.

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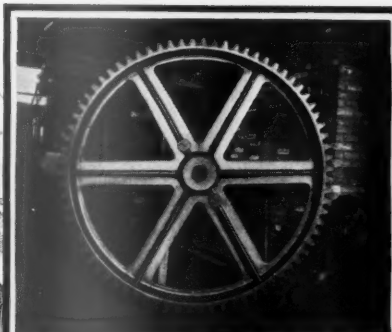
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For pattern making these pseudo-white pines haven't the working quality of the genuine—the soft, even texture.

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Weyerhaeuser Service Men are now planning their engagements for 1924. We should appreciate early correspondence from manufacturers who wish to have this Weyerhaeuser personal attention.



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ATTENTION, FORESTERS!

AMERICAN FORESTS AND FOREST LIFE will print, free of charge in this column, advertisements of foresters wanting positions, or of persons having employment to offer foresters.

POSITIONS WANTED

POSITION WANTED by a man 30 years old. Experienced in practical forestry both in the South and West. Ten years' experience with trees, plants and flowers. Farm superintendent of unusual ability. Excellent references. Address Box 7010, care AMERICAN FORESTS AND FOREST LIFE, Washington, D. C.

MAN OF 4½ years' experience in United States Forest Service and about four years in Ornamental Nursery and Landscape work; now employed by one of the most reliable landscape firms in the East; wants to return to forestry, either state or municipal. Will consider position on large private estate. Graduate of Yale Forest School. Information and references furnished. Address Box 7015, care AMERICAN FORESTS AND FOREST LIFE, Washington, D. C.

YOUNG MARRIED MAN, 26 years of age, 2 children, a farm superintendent, desires forestry work with a company or private estate anywhere, steady year-round work, developing and replanting on estates. Address Box 7025, care AMERICAN FORESTS AND FOREST LIFE, Washington, D. C.

EX-SERVICE MAN, from 11th Co., 20th Engineers, A. E. F., heretofore unable to work because of ill health, now wishes to return to woods work. Experienced woodsman, with good references. Address Box 7020, care AMERICAN FORESTS AND FOREST LIFE, Washington, D. C. (2-4-24)

POSITION WANTED by man 70 years of age, in good health and active, single. Would assume the responsibility of the care of an estate, or game preserve, a friend of animals and birds. Lifelong practical experience in farming in So. E. Penna., 20 years' connection with a large nursery, expert knowledge of selecting and practical planting and care of pecan, English walnut, fruit, shade and ornamental trees, shrubbery, small fruits, flowers, vegetables, &c. Practical pruning a specialty, two winters spent in Florida pruning orange trees. Prefer location in East or South. Would consider an offer on a salary or share basis, if possible a personal interview requested. Satisfactory reference furnished. Address Box 7040, care AMERICAN FORESTS AND FOREST LIFE, Washington, D. C. (2-4-24)

YOUNG MAN, Single. Forestry student in two universities. Ranger in United States Forest Service, serving in Districts 6 and 3, desires to enter field of State, private or foreign forestry. Full particulars and references given on request. Address Box 7030, care AMERICAN FORESTS AND FOREST LIFE, Washington, D. C. (2-4-24)

TECHNICALLY TRAINED FORESTER, at present employed, desires to change his position. Has had several years' practical experience in all phases of forest work. Would like to correspond with any person, corporation, or municipality desiring to employ such a man. Address Box 7045, care of AMERICAN FORESTS AND FOREST LIFE, Washington, D. C. (3-5-24)

GRADUATE FORESTER—B. S. in Forestry 1910, with thirteen years of experience in both field and office work in forestry and forest engineering. Would like opportunity of organizing a forestry or forest engineering department for a pulp or mill concern. Best of references furnished. Address Box 7050, care of AMERICAN FORESTS AND FOREST LIFE, Washington, D. C. (4-6-24)

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POSITION OPEN.—Position to offer young man made of good goods, who is willing to work from bottom up to member of firm in nursery doing general retail and landscape business in Davenport, Iowa; Rock Island and Moline, Illinois, and vicinity. Must be clean, keen, energetic, even-tempered, and a stickler. Some knowledge of nursery work preferred. Address Box 7075, care of AMERICAN FORESTS AND FOREST LIFE, Washington, D. C. (4-6-24)

Mention AMERICAN FORESTS AND FOREST LIFE—It Helps

REDWOOD COMPANY GIVES REDWOOD PARK TO STATE

The Pacific Lumber Company, San Francisco, has given the State of California a beautiful park of 289 acres of virgin redwood timber in Humboldt County, near Dyerville, known as the South Dyerville Flat. The gift was made possible through the generosity of Mr. William H. Murphy, a son, and Dr. Fred T. Murphy, a grandson, of the late Simon J. Murphy. The gift has been accepted by the State Board of Forestry and the park will be dedicated to the memory of Simon J. Murphy.

The donation of this valuable park site came about primarily through interest in the "Save the Redwoods League" and the public-spirited attitude of the Pacific Lumber Company. It is possible that other large redwood timber-owners will emulate the example of the Pacific Lumber Company in setting aside available redwood park sites.

ANOTHER HANDY TREE BOOK

"Common Forest Trees of Georgia," a handbook prepared by W. R. Mattoon, with the assistance of Professor T. D. Burleigh, head of the Forest School at the Georgia State College of Agriculture, has recently been published by the Extension Division of the college. The cuts of the hardwoods are all from drawings by Mrs. A. E. Hoyle, of the branch of engineering.

This is the ninth sister in the "forest-tree-guide family." The Georgia manual is the largest of them all, with descriptions of eight more trees than any other book, or a total of seventy-eight species. Each is accompanied with an outline figure of the leaf, fruit, and winter twig, and, in the case of some, also the flower.

INCREASE IN PAPER MILLS AND PAPER MAKING

In 1810 there were 200 paper mills in the United States, with an annual total output of 3,000 tons. These figures increased by 1860 to 555 mills, with a yearly output of 127,000 tons. In 1919, the last census year, there were 729 pulp and paper establishments, with an output of over six million tons of paper. The invested capital exceeded 900 million dollars, the power used was in excess of 1,850,000 horsepower, and the number of persons employed 125,000. This is an increase in 110 years of 2,000 times of paper, while the population was increasing 15 times. This is an age of paper. The modern annual capita consumption for the leading countries varies from 5 pounds in Russia to 75 pounds in Great Britain and 148 pounds in the United States. Wood is by far the best and most widely distributed raw material from which paper is made. The annual consumption of wood for this purpose in the United States is approximately five and a half million cords, of which a million cords, more or less, are imported from Canada.



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LOCATION AND AMOUNT: All of the merchantable dead timber standing and down and the live timber marked or designated for cutting on an area embracing about 118,391 acres in Ts. 38, 39 and 40 N., R. 14 W., Ts. 38 and 39 N., R. 15 W., Ts. 39, 40, 41 and 42 N., R. 16 W., and Ts. 39, 40 and 41 N., R. 17 W., N. M. P. M., Dolores Unit, Montezuma National Forest, Colorado, estimated to be 253,000,000 feet B. M., log scale, more or less, of western yellow-pine timber; or a block of the timber on this unit, comprising about 40,269 acres in Ts. 38, 39 and 40 N., R. 14 W., Ts. 38 and 39 N., R. 15 W., and T. 39 N., R. 16 W., amounting to approximately 70,000,000 feet B. M.

In addition there are approximately 110,000,000 feet of privately owned timber adjoining the Government timber which may be removed with the same improvements.

STUMPAGE PRICES: Lowest rate considered for Government stumpage: For the entire unit, \$2.25 per M feet; for the designated block, \$3.00 per M feet. Rates to be readjusted April 1, 1928, and each three years thereafter.

DEPOSIT: With bid \$5,000 to apply on purchase price if bid is accepted, refunded if bid is rejected, or retained in part as liquidated damages, according to conditions of sale.

FINAL DATE FOR BIDS: Sealed bids will be received by the District Forester, Denver, Colorado, up to and including April 10, 1924.

The right to reject any and all bids is reserved.

Before bids are submitted full information concerning the character of the timber, conditions of sale, deposits and the submission of bids should be obtained from the District Forester, Denver, Colorado, or the Forest Supervisor, Mancos, Colorado.

One of the finest, most gracious things you could do is to tell some friend about American Forests and Forest Life. We would appreciate your courtesy and so would he.

CO-OPERATIVE FUND FOR FOREST ROADS AND TRAILS APPORTIONED

Twenty-eight states in which national forests are located wholly or in part will share in the distribution during the current fiscal year of the \$1,000,000 fund appropriated by Congress annually for the construction of roads and trails within the National Forests in co-operation with local authorities. By the apportionment recently approved by the Chief of the Forest Service and the Secretary of Agriculture, Alaska and Porto Rico will also share in the distribution of this fund.

Last year 27 states shared in the federal moneys, Pennsylvania having been added to this year's list, following the establishment of the Allegheny National Forest in that state. This particular fund is expended only under co-operative agreements with state and local authorities and should not be confused with other road-building funds ex-

pended upon roads and trails within the National Forests.

Following are the states and the amounts each will receive: Arizona, \$54,209; Arkansas, \$9,732; California, \$126,822; Colorado, \$67,537; Idaho, \$114,764; Montana, \$64,889; Nevada, \$17,164; New Mexico, \$37,945; Oregon, \$136,686; South Dakota, \$7,495; Utah, \$38,319; Washington, \$85,741; Wyoming, \$45,201. Alaska receives \$43,919.

Florida, Michigan, Minnesota, Nebraska, North Dakota, Oklahoma, and Porto Rico will together share in \$13,980. Alabama, Georgia, Maine, New Hampshire, North Carolina, Pennsylvania, South Carolina, Tennessee, Virginia, and West Virginia will together share in \$35,597. The sum of \$100,000 is reserved for administrative and equipment expenditures and special contingencies.

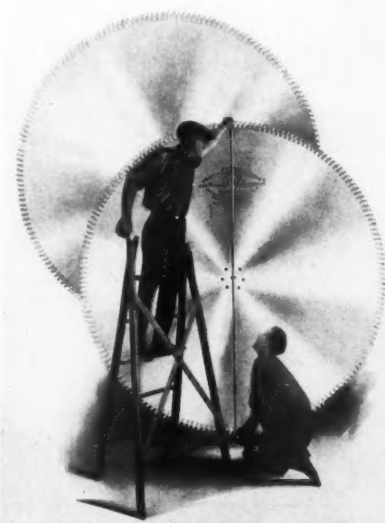
GIANT SAWS FOR GIANT LOGS

Shingle bolts are made to order from giant cedar logs by these record-breaking saws! They are each 108 inches in diameter and have been shipped completed by Henry Disston & Sons, Inc., from Philadelphia to the Eureka Lumber Manufacturing Company at Hoquiam, Washington. These saws are exact duplicates of two Disston cut-off saws installed in the same mill in April, 1920, which won fame as the largest saws in the world.

Each saw was made from a steel ingot weighing 1,140 pounds. This ingot was reheated, rolled, and trimmed until the weight of the finished saw was 795 pounds. The circumference of the saws is more than 28 feet, and the rim, when operating at full speed, travels at the rate of 130 miles an hour. The teeth are inserted in the blade, 190 being required for each saw. They are of the spiral-tooth type, a Disston invention, being inserted in the blade on spiral lines, which insure smooth cutting and gives them full clearance without the necessity of

setting them. They are sharpened by automatic machinery.

The manufacture of saws nine feet in



DESIGNED TO CUT THE LARGEST LOGS OF THE NORTHWEST, THESE SAWS HAVE PROVED EQUAL TO THE HARDEST SERVICE

diameter required steel of special composition, free from any defect, uniform in hardness and composition, having great tensile strength. This steel was made by a special process and cast in a solid block. Then the ingots from the crucibles were heated and hammered into slabs, which in turn were rolled into plates, one for each saw. Mills of enormous strength drew the plates to the correct dimensions for the saws after many operations. Next the plates were made ready for the insertion of the teeth, hardened and tempered, and given the correct tension for operating at the terrific speed at which they must run.

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BOOK REVIEWS

LUMBER AND ITS USES. By R. S. Kellogg. U. P. C. Book Company (New York). Price, \$4.00.

Revised by Franklin H. Smith, this third and enlarged edition of a standard work explains in simple, non-technical fashion the properties and uses of the principal American species which are manufactured into lumber. It covers the Structure of Wood, Physical Properties of Wood, Lumber Grades, Standard Sizes of Lumber, Seasoning of Timber, Wood Preservation, Paints, and Wood Finishes, and also covers the uses of lumber in various industries.

SUMMER CAMPS FOR BOYS AND GIRLS.

Undertaken at the instigation of the *Red Book Magazine*, this is a brief account of an "inland voyage" to over 200 New England camps for boys and girls by Mr. Henry Wellington Wack, associate director of the camp department of that magazine. The author makes keen observations on and an appraisal of the character, conduct, and recreative functions of American camps and their increasing value as factors of culture in the development of American youth, together with their consideration as inspirational adjuncts of our national educational system. The book carries an introduction by Dudley A. Sargent, A. M., M. D., S. D., M. P. E.

MAN'S SPIRITUAL CONTACT WITH THE LANDSCAPE. By Stephen F. Hamblin. Badger, The Gorham Press (Boston). Price, \$2.50.

Rather than a "guide book to nature," this book should be called a landscape guide book for the soul. Nature being "the art of God," the student of her various forms finds quickest contact with the Infinite. And it takes just such a book as Mr. Hamblin has written to remind us that this is truly a fact. We are too often wholly engrossed in the interests and cares of business life, when on a journey, to take time to look out, with an eye that sees, on the world of beauty that lies about us. To cure this blindness and demonstrate the spiritual appeal of Nature as manifested and visualized in her physical forms, is the high purpose to which this book is dedicated. It is a valuable and indispensable addition to the Nature literature.

THE AMERICAN HUNTER. By Frank Winch. National Sportsman, Inc. (Boston).

A discussion of the art of hunting from the standpoint of the true sportsman—an art the very existence of which is threatened by the rapidity with which our game is exterminated under modern reckless killing methods. A little book from the hand of a

man who knows the game and plays it. It will be read with appreciation and understanding by all who love the fascinating lure of the chase.

SCIENCE REMAKING THE WORLD. Edited by Otis W. Caldwell, Ph. D., and Edwin E. Slosson, Ph. D. Doubleday, Page & Company (Garden City, N. Y.). Price, \$2.50.

The object of this book is to organize and present many of the results of modern science so that these results may be seen and understood by intelligent non-scientific persons—to bring about a better public understanding of modern science and its uses.

TREE VALUES ARE TRUE VALUES.

Dedicated to "those who see in the tree the friend of man," this book records the tree ceremonial at the 75-year-old McDonald pecan tree under the auspices of the Randolph County Advertising Club of Randolph County, Georgia. As well as this interesting account, there is embodied valuable information in regard to the relation of food trees to land values, set forth in the form of charts based on United States Government figures, from which the author shows a striking relation between land values in different states.

HOUGH'S AMERICAN WOODS

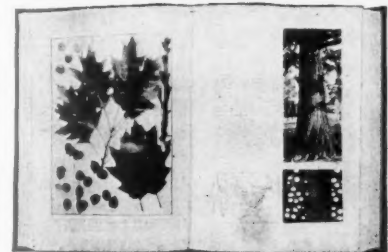
A publication illustrated by actual specimens (showing the end, "quarter" and "flat" grains of each wood) with text telling uses, properties, distributions, etc.



A volume of AMERICAN WOODS open. The plates containing the specimens go with the text into the clasped book-like cover.

HOUGH'S HANDBOOK OF TREES

Is photo-descriptive and enables one to identify all of the trees east of the Rocky Mountains and north of the Gulf States at any season of the year. 891 illustrations.



The HANDBOOK opened at Red Oak. Two pages facing each other are devoted to a species. "Its illustrations almost carry the scent and touch of the original."—*New York Times*.

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when they arrive

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What Our Readers Think of the New Magazine

"I have the first issue of the Association's magazine in its new cover and under its new name, and desire to congratulate you on its excellent appearance and on the interesting material and articles it contains."

—Arno B. Cammerer, Acting Director, National Park Service, Washington, D. C.

"I see the magazine regularly and have the highest admiration for it. Congratulations on its new and improved form."

—Dr. Clinton G. Abbott, Director
San Diego Natural History Museum.

"Heartiest congratulations on AMERICAN FORESTS AND FOREST LIFE. The King is dead. Long live the King! From the bull moose on the front cover to the fine appeal for doubled membership on the back cover, you have given us a book of absorbing interest and appeal, and more than that, of solid scientific structure. AMERICAN FORESTS AND FOREST LIFE rightfully takes its place as the indispensable nature magazine for the American home. It is the 'open sesame' of Nature's treasure-house."

—W. A. Babbitt, South Bend, Indiana.

"The magazine is much enjoyed in my own household, and then it goes on to the 'Edwards Club,' composed of tubercular ex-soldiers."

—Mrs. D. Edward Beebe,
Worcester, Massachusetts.

"I wish to congratulate you highly upon the appearance of the magazine in its new dress. The first two issues for this year are certainly very interesting and I am sure the improvement will increase its success."

—Swift Berry, California Forest Protective Association, San Francisco.

"The new magazine is attractive and I believe it is better to have it less like a technical publication, for at the magazine stands where I went for extra copies, they said they didn't carry it—'No technical magazines!' was the response to my inquiry. The new cover is good and in no way suggests a lesser interest in trees. Trees need animal life as well as animals need the trees."

—Mrs. Byrd Spillman Dewey,
Pablo Beach, Florida.

"The January and February numbers of the magazine came promptly. We are reading it systematically and both pupils and teachers are deriving much pleasure as well as benefit from it."

—Charlotte J. Godsmen, Principal, Montclair School, Denver.

"Although I am old enough to dislike any change, I heartily approve of your name. It is really much more appropriate and we can now have a magazine true to its name."

—J. S. Holmes, State Forester,
Chapel Hill, North Carolina.

"The January issue is splendid, and I wish to congratulate you on the new title, which certainly fits the magazine much better than AMERICAN FORESTRY. The picture on the front cover is an inspiring one, both from the standpoint of big game and big timber, and reminds one of the real thing, both in the American northlands and in Sweden."

—G. W. Hult, San Francisco, California.

"Herewith please find my check for subscription to your wonderful magazine, which I saw today for the first time. I feel that I have been most unfortunate not to have had the privilege to have seen it before."

—J. C. Jenkins, M. D., Mount Airy, Pa.

"The magazine certainly looks mighty fine, all dressed up in its new cover, and the new name is most appropriate."

—David T. Mason, Forest Engineer,
Portland, Oregon.

"Congratulations on the new title and the new cover."

—Walter Mulford, Professor of Forestry,
University of California, Berkeley.

"I think your magazine is improving all the time."

—C. F. Quincy, New York City.

"The new dress is handsome, the new name appealing. Good luck!"

—James Henry Rice, Jr., Naturalist,
Wiggins, South Carolina.

"I want to congratulate you on the splendid magazine you have and especially on the change of name. This certainly broadens its scope, and should enable you to cover the field more thoroughly than before. The work you are doing in this connection is of the first water, and here's wishing you the best of success which your efforts merit."

—Harris A. Reynolds, Secretary, Massachusetts Forestry Association, Boston.

"I wish to congratulate you on your new title as well as to all it implies in the contents of your January issue. Hereafter the magazine becomes of interest to my entire family."

—Donald G. Ross, Poster Advertising Co., New York City.

"I have always had a lively interest in forestry and could not keep in touch with affairs without AMERICAN FORESTS AND FOREST LIFE."

—R. S. Salyards, Jr.,
Colorado Springs, Colorado.

"I want to congratulate you on your January number. It is a beauty—one of the handsomest magazines I have seen for some time. Not only are the cuts wonderful, but the articles team with interest."

—Hardy Steeholm, Editor, The Wisconsin Magazine, Madison, Wisconsin.

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Forest Ranger Course of high-school grade, covering one term of three months, given during the months of January, February, and March.

No tuition is charged for any of the above courses, and otherwise expenses are the lowest.

Large logging and milling operations, important wood-working industries, also extensive federal, state, and private forests near at hand. Excellent opportunity for summer employment.

Correspondence Course. A course in Lumber and Its Uses is offered by correspondence, for which a nominal charge is made.

For further particulars address,

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Technical Forestry, preparing men for service as professional foresters in federal, state, and private work.

Logging Engineering, preparing men to solve the engineering problems peculiar to the logging industry of the West.

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Twenty per cent of all the remaining standing timber is in Oregon. Unequaled opportunities for the study of Pacific Coast forests lie at the doors of this Forest School. The largest lumber manufacturing plants in the world are easily accessible. Students readily obtain practical experience in summer with the Federal Forest Service or the logging camps and mills.

For catalog and further information, address

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**Oregon State
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LARGEST WALNUT TREE IS IN YUBA CITY

Yuba City has the distinction of having within its limits the largest walnut tree in California and in all probability in the world. The tree is on B Street, in the yard of Mrs. G. B. Lyman, and attracts the attention of all visitors to our town. It is known as a Paradox walnut, a cross between the Northern California black walnut and the English walnut.

Measurements and photographs were recently taken by Peter Bisset, of the U. S. Agricultural Department, Washington, D. C. The circumference of the trunk four feet from the ground is fifteen feet and four inches, while the greatest spread of branches is one hundred and eight feet. The height was recently obtained by W. F. Peck, the well-known civil engineer, who finds the



THE YUBA PARADOX WALNUT.
THE TREE IS OVER NINETY-NINE
FEET HIGH AND HAS A SPREAD
OF ONE HUNDRED AND EIGHT
FEET

height to the square of the top to be ninety-nine and six-tenths feet. The extreme height to the tip of the topmost limb would be three or four feet more.

In a recent bulletin on walnut culture, published by the University of California, Prof. Ralph E. Smith says, in referring to Paradox walnut trees: "Most notable is that called the Yuba City tree, which stands in the town of the above name just across the street to the north of the court-house. This tree is undoubtedly the largest walnut tree in California, and in all probability the largest in the world. Its great size is accounted for by its age, as it appears to have

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Advanced and Research Work.

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Tropical Forestry.

Lumbermen and others desiring instruction in special subjects may be enrolled as

Special Students.

The work of the summer term at Milford, Penn., which is a part of the regular course, is open to special students with adequate preparation.

For further information and catalogue address: The Dean of the School of Forestry, New Haven, Connecticut, U. S. A.

The New York State College of Forestry Syracuse University Syracuse, N. Y.

A FOUR-YEAR course in Pulp and Paper Manufacture and a short course each spring in Dry-kiln Engineering and Lumber Grading are regularly given. The State Forest Experiment Station of ninety acres at Syracuse, the Charles Lathrop Pack Demonstration Forest of 1,000 acres at Cranberry Lake, three other experiment stations, the Roosevelt Wild Life Forest Experiment Station, a modern pulp mill, a well-equipped sawmill, a complete dry-kiln plant, the biological laboratories, and an excellent reference library afford unusual opportunities for investigative work. In addition to the regular four-year undergraduate courses, special courses are offered that lead to the degrees of Master of Forestry, Master of City Forestry, Master of Science, Doctor of Philosophy, and Doctor of Economics.

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Opportunities for full technical training, and for specializing in forestry problems of the northeastern States and Canada.

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Largest Cruising House in America

been planted at least forty years ago, along with several neighboring ordinary black walnuts of the Northern California type. Any one interested in walnuts will be well repaid by a visit to Yuba City for the purpose of seeing this tree. It is conspicuous long before reaching the town, rearing its enormous head above every other object in the vicinity. The tree bears a considerable quantity of nuts every year, but the amount of the crop is insignificant in proportion to the size of the tree."

WOODPECKER CASUALTIES

Telephone and telegraph poles offer a wonderful field of operation for the busy and destructive woodpecker, as indicated by the illustration. These pictures are of sections of a pole belonging to the Southern California Edison Company, and look as



though they had been the objective of a rapid-fire gun loaded with acorns. Mr. Cunningham, of the company, says it is quite a common thing to find poles, where lines run through a section of country where oak trees predominate, completely studded with acorns, as shown by the pictures. In this case the woodpeckers have hollowed out the pole until they have practically cut it in two.

"I want to say just a word of congratulation over the new form of AMERICAN FORESTRY. It certainly is a mighty creditable issue for January, and should attract support everywhere, for itself as well as for the underlying purpose of the publication in the background."

—C. P. Wilber, State Forester,
Trenton, N. J.

RAILROADS CONSUME ONE-FOURTH OF LUMBER CUT

It is said that American railway companies are second only to sash and door, planing-mill, and general mill-work plants as users of wood. The saving, therefore, that they can effect through wood preservation treatment is a large factor in timber conservation. The American railroads, according to the *Wood Preserving News*, use enough lumber and timber each year, were it reduced to one-inch boards, to cover the entire States of New York and Pennsylvania and a part of New Jersey. About one-third of the lumber is used in the form of cross-ties, but only about half of the ties are given preservative treatment. Some roads treat all ties and many other materials, such as bridges and wharf timbers, piling, poles, posts, and crossing plants. It has been demonstrated that tie treatment pays, through the low average annual cost, although the first cost is high. The railroads use about 125 million cross-ties each normal year. The Forests Products Laboratory at Madison, Wisconsin, co-operates with a number of railroads in improving wood-preservation treatment methods and has been able to achieve distinct progress that is of value to all industries interested in the endurance of timbers.

THIS WINS THE CACTUS SLEEPING BAG

Ranger Larsen, of the Cabinet National Forest, was blazing a trail last spring through a very heavy stand of young growth on Cataract Creek. He was working along probably a half mile from the crew. He heard a noise in the underbrush, but went on working, paying no attention to it; but presently the noise became louder and nearer. Larsen looked around and discovered, about thirty feet from him and coming toward him on a dead run, a grizzly bear. Larsen was standing near a tree, which was the only tree within three or four hundred yards, and he lost no time in starting to the top. But the bear lost no time either, and when Larsen was about eighteen feet from the ground the bear caught him, grabbed his foot, and tried to pull him from the tree. The bear let loose of the tree and hung with his mouth to Larsen's foot. Finally Larsen's shoe broke under the strain, pulled in two, the heel came off from it, and the bear and part of the shoe dropped to the ground. Larsen stayed in the tree long enough to give the bear plenty of chance to get out of sight and went back to the crew.

The next day he went back with a rifle and discovered that the grizzly had been feeding off another bear which Larsen had shot the week before. At the time he shot he did not know that he had hit the bear, but the grizzly had it about half consumed. Aside from a scratched foot, a lost shoe, and a bad scare, Larsen suffered no damages.

Facts For Advertisers

The following comparison of the occupations of the readers of

AMERICAN FORESTS and FOREST LIFE

with those given in the U. S. Census Occupational Report indicates clearly why we offer advertisers "Quality and Responsiveness."

Occupation	Readers of American Forests and Forest Life, per cent.	Total United States, per cent.
Agriculture, forestry and animal husbandry.....	30.9	26.3
Extraction of minerals	0.0	2.6
Manufacturing and mechanical industries	15.6	30.8
Transportation	1.4	7.4
Trade	11.4	10.2
Public service (not elsewhere classified)	2.2	1.9
Professional service	37.0	5.2
Domestic and personal service	0.0	8.2
Clerical occupations	1.5	7.5
Grand total	100.0	100.1

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YOU use the FORESTS—

When you build a HOME.

When you eat a MEAL.

When you read a NEWSPAPER.

When you go CAMPING or HUNTING.

When you drive an AUTOMOBILE.

When you ride on a TRAIN.

When you go to the MOVIE.

When you build a FIRE.

In hundreds of other things you do, you use the forest—every day—in one form or another. Abundant forests stand for a better America, a higher standard of living, happier and more prosperous homes, a greater outdoors, better fishing and hunting, more beautiful roads, more wild flowers and wild life—for all that makes for a better, cleaner, and healthier life.

YOU, Mr. American Citizen, are using your FOREST CAPITAL more than four times faster than it is being replaced. If you handled your BANK ACCOUNT in that manner, what would you leave your CHILDREN?

WHAT ARE YOU DOING TO HELP PERPETUATE THE FOREST?

YOU CAN HELP. It will take only a few minutes of your time. Urge your friends to become members of The American Forestry Association, which stands for the protection and perpetuation of American forests in a sane, conscientious way. It is the least you can do to HELP KEEP FORESTS OUTDOORS AND IN.

DO THIS FOR YOUR FRIENDS, YOURSELF, AND YOUR CHILDREN.

IN RETURN, they will receive AMERICAN FORESTS AND FOREST LIFE, which will interest and enlighten the whole family.

**CLIP THE APPLICATION BLANK ON PAGE 248
AND MAKE IT COUNT FOR A MEMBER**

1875

1925

A half century or more ago, American men of vision, stirred by the rapidity of forest destruction in the United States, began to raise their voices in behalf of our native woods. These patriots foresaw the folly of a young nation, blessed with the greatest forests known to man, inaugurating a policy which reaped with wasteful rapacity and sowed with seeds of fire.

Out of their efforts came a collective force, THE AMERICAN FORESTRY ASSOCIATION, first organized in 1875 and made a national factor in 1882.

The Association was founded on the principle that a permanent and sufficient supply of forests is essential in the household of the nation. To it, more than to any other agency, belongs the credit for having brought together the forest sentiment of the country and given life to the early forest movement of America.

Meeting all opposition and surviving one crisis after another when a cause less vital and worthy would have vanished, THE AMERICAN FORESTRY ASSOCIATION stands today with a long record of efficient public service back of it.

In order to commemorate this outstanding record of service, an effort will be made during 1924 to DOUBLE THE ASSOCIATION MEMBERSHIP.

This could be accomplished with comparative ease by general magazine subscription methods. Such methods, however, fail to yield the loyal type of membership for which the Association has always striven. We have accordingly decided to double our membership by asking that EACH MEMBER GET ONE NEW MEMBER or send us the names of twenty-five people whom they believe to be interested in the conservation and perpetuation of

American Forests and Forest Life

It will take but a few minutes, and will yield splendid returns for the time and effort invested.

THE AMERICAN FORESTRY ASSOCIATION

The Lenox Building, 1523 L Street,

Washington, D. C.

